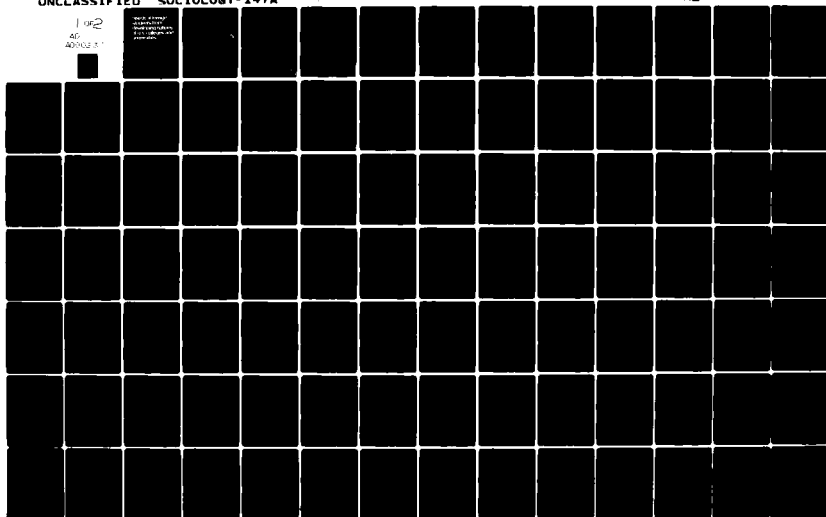


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# needs of foreign students from developing nations at u.s. colleges and universities

The Final Report of Phase II

Motoko Y. Lee, Principal Investigator  
Mokhtar Abd-Ella  
Linda A. Burks

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Iowa State University of Science and Technology, Ames, Iowa

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9 Final report

10 NEEDS OF FOREIGN STUDENTS FROM DEVELOPING  
NATIONS AT U.S. COLLEGES AND UNIVERSITIES,  
FINAL REPORT OF PHASE II

by

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Mokhtar/Abd-Elia  
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The National Association for Foreign Student Affairs  
Washington, D.C.

The Agency for International Development  
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The opinions, findings, and conclusions expressed in this  
publication are those of the authors and not necessarily  
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Affairs and the Agency for International Development.

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## PREFACE

A study was initiated in April, 1978, at Iowa State University to assess the needs of foreign students from developing nations who were studying in academic degree programs at U.S. colleges and universities. The Agency for International Development (AID) contracted the National Association for Foreign Student Affairs (NAFSA) and subcontracted the Department of Sociology and Anthropology, Iowa State University to conduct the study.

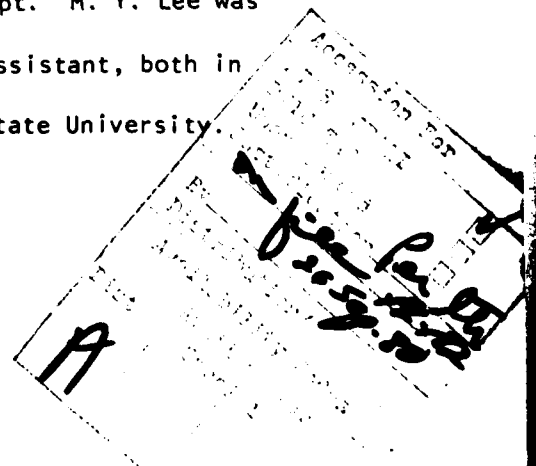
The overall study consisted of two phases: Phase I (the formulation of a research design,<sup>1</sup> including the construction of a questionnaire for a nation-wide survey), and Phase II (a nation-wide survey to assess the self-perceived needs of the above-mentioned population). This report pertains to Phase II of the study. Work on Phase II started in April, 1979, and was completed in March, 1980.

This report is the overall research report of Phase II tasks, and presents the results of data analyses. It will be supplemented by another volume, Phase II - DATA BOOK, which will include details of the analyzed data.

One of the authors of this report, Mokhtar Abd-Ella, returned to Egypt (during Phase II) in order to resume his duties at the College of Agriculture, University of Tanta, Kafr-El-Sheikh, Egypt. M. Y. Lee was Assistant Professor and Linda A. Burks was Graduate Assistant, both in the Department of Sociology and Anthropology, Iowa State University.

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<sup>1</sup> See Lee et al. (1979).



## ACKNOWLEDGEMENT

We wish to extend our special gratitude to Prof. Stephen C. Dunnett, the NAFSA Advisor for Phase II, for his valuable advice and constant encouragement. We appreciated his genuine interest in the research and the faith he maintained in us through all the stages of the study.

We are grateful to the following persons at Iowa State University who assisted us in Phase II: Dr. Gerald E. Klonglan, the chairman of the Department of Sociology and Anthropology, who assisted us as our sociological advisor; Dr. Richard D. Warren, our statistical advisor and the director of the Research Institute of Education; and Dr. C.P. Han and Dr. Wayne A. Fuller, both of the Department of Statistics. We are indebted to Dr. Fuller for his assistance with data analyses, using Super Carp, a program invented by Dr. Fuller and his associates in the Department of Statistics. We would like to extend our sincere appreciation to Mr. Anil Londhe for computer programming of our data analyses, and Mrs. Charlotte Latta and Mrs. Shu Huang of the Economics Computing Section for processing our data with great care. We wish to express our gratitude to Mrs. Barbara Munson and Mrs. Colleen Ryan for their assistance in every aspect of Phase II.

We received a great deal of encouragement and assistance from numerous foreign student advisors across the nation. We regret that we cannot acknowledge their contributions to this study by identifying them publicly. Our sincere appreciation is extended to all the foreign students who spared their precious time for this study. Many of them sent us kind words of encouragement along with their responses.

Last but not least, we wish to express our sincere appreciation to the NAFSA personnel, in particular Miss Ellen Wise, for assisting us during

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the study. We are grateful to both NAFSA and AID for giving us this opportunity to conduct a study which we hope will contribute, to some extent, to a better understanding of fellow human beings everywhere.

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## EXECUTIVE SUMMARY

The overall objective of Phase II was to conduct the national survey to assess the needs of foreign students from developing nations at U.S. colleges and universities and to compare importance and satisfaction of their needs by sponsorship categories (i.e. AID-sponsored vs. others) and other characteristics of students.

A multi-stage cluster sample with probability proportionate to size was used to select schools and students in the nation, based on the sampling procedure determined in Phase I. Copies of the questionnaire developed in Phase I were mailed to students chosen in thirty universities. Nearly 1900 students responded to the questionnaire.

In every category of needs, needs were not satisfied to the level of students' expectations, even though most of the needs were satisfied to a certain degree rather than unsatisfied. Needs for practical experience (work experience and opportunities to apply knowledge), and anticipated post-return needs were among the least satisfied to the students' expectations and the most problematic ones for educational institutions to accommodate. Financial needs and pre-return informational needs were also least met to the students' expectations, however meeting these needs was less problematic. Among all the categories of needs, informational needs were best met. Students were also quite satisfied with the likelihood of achieving their primary educational goals which they regarded with the highest importance.

Importance and satisfaction of the needs were analyzed in terms of a number of characteristics. Students varied most by regions of the world from which they came and second by the major field categories with regard to importance they placed on various needs. Sponsorship categories, undergraduate vs. graduate status distinctions and job prospects (whether one has a job waiting in one's country or not) were the next significant characteristics to account for variation in importance of needs. With regard to satisfaction of needs, again, regions of the world turned out to be the most significant predictor of satisfaction with many needs, followed by self-evaluated command of English, whether or not living with U.S. students, and job prospects in their home countries. Recommendations were made based on the findings in Phase II.

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## I. OBJECTIVES OF PHASE II

The major objectives of Phase II were proposed as follows:

1. To assess the needs of foreign students from developing nations at U.S. universities and colleges as perceived by the students themselves.
2. To evaluate to what extent the students perceived identified needs were being met.
3. To identify the personal characteristics of individuals related to different needs as well as the degree to which the needs were being met. The personal characteristics will include sponsorships (AID, home country governments, and others), graduate and undergraduate classifications, sex, regions of the world, etc.
4. To test selected hypotheses, which were formulated on the basis of the literature reviews and the pretest in Phase I.
5. To make appropriate recommendations to the educational institutions, the Agency for International Development, and the National Association for Foreign Student Affairs in order for them to consider means of accommodating some of the unmet needs identified in Phase II.
6. To identify future directions for research on foreign students and their educational institutions based on Phase II findings.
7. To disseminate information obtained in the national survey among relevant agencies, institutions of higher education, and individual professionals in international education by

publishing the findings of Phase II, writing technical papers and/or making presentations at training seminars and other professional meetings.<sup>2</sup>

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<sup>2</sup> These objectives were proposed, assuming that Phase II would commence in March and therefore data collection could begin in May, 1979. Due to the fact that Phase II began in April and consequently data collection was delayed until fall of 1979, we had to postpone our seventh objective with a hope that Phase III would be granted to achieve that objective.

## II. REVIEW OF LITERATURE

This review of literature is the updated version of what was originally presented in the final report on Phase I of this project. Over 20 sources of literature were added to the previous review. In Phase I, a search of literature on foreign students was conducted by review of reports, journal articles, books, dissertations, and other publications. Computer literature searches using the Iowa State University Library computer facility and a search conducted by the Smithsonian Science Information Exchange were also employed to identify recent publications through May, 1978, and research activities through July, 1979. The extensive review conducted by Spaulding and Flack (1976) was most helpful. The result of literature review and search for information on current research activities shows insufficient assessment of foreign student needs conducted on a national scale.

The following review is organized in three sections:

- A. Overview of literature on foreign students.
- B. Description of problems and needs of foreign students in the literature.
- C. Literature which suggests important independent variables in relation to needs of foreign students.

### Overview

A review of related research on foreign students reveals that previous studies vary in terms of the populations studied and in the subject matter. In this section, only a summary of the literature review to support

relevance of a study to assess needs of foreign students on a nation-wide scale is presented. We are unable to cite here all the publications we reviewed; therefore, the review should be read as that of representative literature.

Most studies have been concerned with such limited populations that they cannot be generalized. Studies that cover the population of the total foreign students in the U.S. have been very scarce. Many studies concentrated only on one campus (e.g. Zain, 1966; Rising and Copp, 1968; Johnson, 1971; Win, 1971; Moghrabi, 1972; Gabriel, 1973; Han, 1975; Niekerk, 1975; Culha, 1974; Clarke and Ozawa, 1970; Collins, 1976; and Stafford, 1977). For example, Clarke and Ozawa (1970) studied major adjustment problems of foreign students at the University of Wisconsin. Niekerk (1975) studied the perceptions of faculty, foreign students, and foreign alumni about foreign student needs and services available at Andrews University. Opportunities for involvement for their spouses, English language instruction, equal treatment in financial matters, practical application and experience, more friendly faculty-student relationships, and more flexibility in visa and employment regulations were found to be the most important needs as expressed by foreign students. The study by Hull (1978) is an exception; he explored adjustment of foreign students in three U.S. campuses. However, the campuses were purposively selected and small in number; thus the generalizability of his findings is limited.

Several studies dealt with foreign students in one state (e.g. Peterson and Neumeyer, 1948; Nenyod, 1975; and Sharma, 1971). For example, Sharma (1971) investigated academic and personal problems of foreign students in the state of North Carolina.

Some studies were concerned with one nationality group (e.g. Basu, 1966; Cortes, 1970; Vorapipalana, 1967; Hj:zainuddin, 1974; Davis, 1973; Moftakhar, 1976; and Gama and Pederson, 1976). For example, Cortes (1970) examined factors related to migration among Philippine students who studied in the U.S. from 1960-1965. Hj:zainuddin (1974) studied factors related to academic performance of Malaysian students at Louisiana State University.

Other studies focused on students from one region in the world (e.g. Win, 1971; Hagey and Hagey, 1974; Eberhard, 1970; Gezi, 1961; and Pruitt, 1977). For example, Eberhard (1970) revealed the need for continuity of contacts between foreign alumni and the U.S. academic community in his study of returning Asian students. Pruitt (1977) studied a representative sample of foreign students from Sub-Saharan Africa in the U.S. She identified the major characteristics of African students in their adjustment to American culture and their assimilation into American society.

Some studies concentrated on participants of specific programs (e.g. Bower et al., 1971; Vorapipalana, 1967; and Kimmel et al., 1969-1972). Kimmel et al. (1969-1972), for example, assessed satisfaction of participants with AID training programs. Studies of general foreign student population have been very few (e.g. Morris, 1960, and Selltiz et al., 1963), and it has been a long time since such a study was done.

There are also some studies concerned only with particular professional groups or specific majors (e.g. Mackson, 1975; Findley, 1975; and Dhillon, 1976). For example, Mackson (1975) studied the relevance of agricultural engineering programs and the needs of agricultural engineering alumni. He found that most alumni felt their programs prepared them to work at home. Alumni expressed the need for professional

materials and continued contact with the U.S. through exchange visits, joint research projects, and the like. Dhillon (1976) outlined some common problems faced by foreign nurses in the U.S. These problems are with regard to English language and communication, American food, family structure, and taking exams.

The subject matters of previous studies were mostly centered around academic performance (e.g. Hountras, 1956; El-Lakeny, 1970; Hj:zainuddin, 1974; and Chongolnee (1978). For example, Hountras (1956) examined factors associated with academic success for foreign graduate students at the University of Michigan. Chongolnee (1978) studied factors related to academic achievement of foreign graduate students at Iowa State University.

The second major area of previous studies was adjustment to the U.S. environment and problems thereof (e.g. Selltiz et al., 1963; Dunnett, 1977; Bouenazos and Leamy, 1974; and Hull, 1978). For example, Selltiz et al. (1963) investigated a sample of foreign students in the U.S. in terms of factors related to social and academic adjustment and attitude toward the U.S. Dunnett (1977) placed a major focus on the effect of an English language program on foreign student adaptation.

A third major area of concern has been non-return to the home country (e.g. Ritterband, 1968; Das, 1969; Myers, 1972; and Glazer, 1974). For example, Das (1969) examined effects of length of stay, age, marital status, the degree pursued, etc. on non-return. Myers (1972) explored the characteristics of non-returnees as well as identified the factors related to non-return.

Although there appears to be a growing concern about the needs of foreign students, research on their needs has been limited. There have

been studies on needs for special counseling for foreign students (Altscher, 1976; and Walter, 1978), more relevant education (Coombs, 1961; Moore, 1970; and Sanders and Ward, 1970), more extracurricular activities (Canter, 1967) and a continued relationship with the U.S. academic community after returning home (Eberhard, 1970 and Mackson, 1975). But how foreign students themselves feel about such needs remains largely uninvestigated. Nor has there been comprehensive research conducted to indicate how such needs are satisfied under the current practices. A study by Culha (1974) on foreign student needs and satisfactions is probably one of the very few studies that has focused on foreign student needs per se. Culha compared the needs and satisfactions of foreign students at the University of Minnesota to those of a group of American students. He found that all needs considered important by foreign students were also considered important by Americans. The only difference between the two groups was in the emotional security scale. This study, as many others, so far has limited generalizability, since the study was conducted on one campus.

In a more recent study, Lather (1978) studied foreign student perception of four educational components at Western Michigan University. He found significant differences between the perceived level of importance and the derived level of satisfaction on each of the four components. The importance level was higher than the satisfaction level in every case. The discrepancy between foreign students' views of problems and those of foreign student advisors' was recognized by von Dorpowski (1978) in terms of intensity, not in terms of the ranking order of the problems. Foreign student advisors tend to view the problems as more serious than foreign students themselves.

### Description of Problems and Needs in the Literature

A number of authors have devoted their efforts to the study of foreign student adjustment and problems thereof. Several have identified the problems foreign students have in the United States.

#### What Do Foreign Students Seek in the U.S.?

Han (1975) found that the goals of foreign students from the Far East did not differ by nationality, marital status, or academic level. He asserted that the principal goals students wanted to achieve in the U.S. were educational. Singh (1976) also found that the main goals of foreign students were educational in nature. Likewise, Hull (1978) found that academic goals were the most important to foreign students. Spaulding and Flack (1976), after reviewing an extensive amount of literature, concluded that the major reasons foreign students came to the United States were the following: to get an advanced education or training not available at home, to acquire prestige through a degree from a U.S. institution, to take advantage of available scholarship funds, to escape unsettled political or economic conditions, and to learn more about the United States.

A unique study was conducted by Knudsen (1977) to determine the critical factors that would negatively influence the goal attainment of foreign students in the international education program for the California State University and College System. The study was not focused on identification of goals from the students' points of view as such, but on identification of critical factors for failure with use of the fault tree analysis based on the perceptions of international education administrators.

What foreign students seek in their study in the U.S. appears to be educational goals, and less importantly, acquisition of prestige,

experience and knowledge of the U.S., and an escape from the political problems in home countries. However, it has been observed that the goals of foreign students, their home governments, their employers, the U.S. government, and U.S. universities are not always the same and in many cases are in conflict (Holland, 1956 and Putnam, 1956). Spaulding and Flack (1976) state that a gap seemed to exist in communication between sponsors, programming agencies, institutional administrators and counselors, and teaching faculties. The problem of conflicting goals has to be solved through effective communication among all parties concerned (Holland, 1956; and Putnam, 1965). Heft (1963) also suggested that the training of foreign students could be made more effective through better cooperation between American and foreign institutions. A colloquium on foreign graduate students in the U.S. recommended that better links should be established with foreign governments, universities, and organizations as a basis for planning (Spaulding and Flack, 1976).

#### What are the Problems and Needs of Foreign Students?

Over the decades, there have been many studies to identify problems and needs of foreign students on different campuses. Kincaid (1951) studied a sample of foreign students from developing nations on seven California campuses and reported that there were no serious problems in English language, finance, housing, course of study or grades, but he found a strong need for expansion of extracurricular activities. Of primary importance was a need for opportunities to visit American families and travel. However, Cannon (1959) asserted that three major problems of foreign students were with regard to communication, finances, and scholastic requirements.

More recently, Moore (1965) suggested that dissatisfaction of foreign students with their American experience was with the specifics

and not the general. He delineated the following foreign student problems: 1) problems related to proficiency in English; 2) problems caused by differences in the educational systems; 3) problems of adjustment to the American culture; 4) problems related to the complexity of the situation in terms of the number of adjustments required and the time allowed for making them; 5) problems of legal impediments to study abroad; 6) problems of academic performance; 7) problems of inadequate resources; and 8) problems of social adjustment.

A number of studies supported Moore's view. The study conducted by Rising and Copp (1968) uncovered lack of proficiency in English as the major problem. They also pointed out foreign students' difficulties with accommodations, transportation, privacy, American food, etiquette, shopping, and use of facilities. Securing good academic advice, financial difficulty, insufficient orientation, and lack of social and personal guidance were found to be the major problems by Ursua (1969). Shepard's study (1970) emphasized inadequacies of predeparture information and on-campus orientation.

Johnson (1971), in a study of foreign students at the University of Tennessee, also claimed that English language proficiency was the most frequent problem of foreign students. Financial problems, separation from family, and homesickness came next. Lack of contact with home country and discrimination were less frequently mentioned problems. Johnson suggested, by comparing responses of foreign students and those of American students, that the problems of both foreign students and American students were basically the same except the language problem. Likewise, Breuder (1972) found that foreign students in Florida colleges cited problems with financial aid, English language, placement, and admission.

Win's (1971) study on Indian and Japanese students at the University of Southern California revealed that academic problems were most frequent followed by financial, housing, religious, personal and interpersonal problems in that order.

Moghrabi (1972) studied the problems of foreign students at the University of Nebraska and found that English language problems were the most prominent. He also found that emotional anxiety was commonly due to lack of social life and linguistic problems. However, financial problems were not found to be of concern to the majority of students in his study. Gabriel's (1973) study at Purdue University again revealed that most foreign students experienced language difficulties in understanding lectures, writing term papers, and expressing ideas, even though these problems became less important after the first year. Han's (1975) findings at the University of Southern California also identified finance, English language, and making American friends to be the most serious problems. Nenyod (1975) also revealed that the major problems of foreign students in Texas were communication, academics, finances, housing and food, religion, social and personal well-being in descending order.

Collins (1976) studied the problems of foreign students at Harvard University. He found that the major problems, in the order of their importance, are social and recreational activities, finances, living conditions, employment, home and family, personal psychological relations and courtship, sex and marriage. Stafford (1977) found that the major problems of foreign students at North Carolina University are problems of adjustment, homesickness, housing, social relations with the opposite sex, English language, and finance. Von Dorpowski (1977) found that the most critical problems for Oriental, Latin American, and Arabian students in the U.S. are financial aid, English language, and placement.      symposium

on educating foreign chemists (Wotiz, 1977) specifies poor educational background and lack of English as the most serious problems of foreign chemistry students. The problem with English language was noted by Perkins, et al. (1977), as particularly acute among Chinese students, more so than among other students.

Basu (1966) added another problem to the above with his study on Indian students. He found additional experience in the U.S. before returning home was the major need among them. He also reported homesickness and concern with currency exchange prior to departure were important difficulties. Some authors emphasize the need to provide prospective foreign students with information about the U.S. educational system (Edgerton, 1975; and Jenkins, 1977). In a study of Iranian students at Oklahoma State University, Moftakhar (1976) found that most students had little accurate information about U.S. colleges and universities prior to arrival.

Problems and needs of foreign students seem to change over time. Klien et al. (1971) reported that early problems were those associated with loneliness, followed by the academic problems and, later by emotional and interpersonal problems. They also found that self-confidence was a major factor in meeting social needs of foreign students. They suggested a shift be made from concern with the foreign aspect of foreign students to the human aspect of them.

The loneliness problem is coupled with a relative lack of interaction between foreign students and U.S. students. For example, Das (1976) cites that a great majority of his sample of foreign students indicated such a lack. Penn (1977) investigated the barriers of interaction between foreign and American students. Foreign students saw that difficulty in understanding the language and their unfamiliarity with American customs

are the major barriers to interaction with Americans. American students stated the following barriers in the order of seriousness: 1) unfamiliarity with foreign customs, 2) misinterpretation of actions, 3) dislike of particular national groups, 4) dislike of personal characteristics such as aggressive behavior and attitude toward members of the opposite sex, and 5) language problems.

Foreign student problems and needs do not end by returning home; yet, they do change in nature. Basu (1966) found that Indian graduate students expected difficulties in personal and professional life upon return. Orr (1971) indicated that many foreign graduates experience readjustment problems upon returning home. Gama and Peterson (1976) found that Brazilian returnees had more problems readjusting to their professional life at home than they had with adjusting with their families. In terms of professional life, returnees experienced some difficulty with:

- 1) adjusting to the system as a whole, 2) their role as college professors, 3) lack of intellectual stimulation, 4) lack of facilities and materials, 5) excessive red tape, and 6) lack of opportunity and time to do research.

In terms of family life, most returnees had little difficulty except that they experienced some value conflict and lack of privacy. Preston (1966) revealed that less than half of the Indian participants made considerable use of their U.S. training. Reasons for not using their training were lack of material resources, negative attitudes of colleagues and superiors about introduction of new ideas, and slow rates of progress and organization. Spaulding and Flack (1976) asserted that foreign alumni wished to maintain contact with their U.S. universities but that the universities lacked programs and the resources to do so. Mackson (1975) states that Agricultural Engineering alumni expressed the following needs, in

order of importance: 1) continuous information in their field, 2) return to the U.S. at intervals to keep up with recent developments, 3) textbooks donated to their libraries and their departments, 4) having visiting scholars, 5) doing thesis research at home, 6) joint research projects, and 7) continued relations between graduates and advisors. These needs may not be particular to agricultural engineers and may be true for other alumni as well.

Problems and needs widely identified in the literature included those in language and communications, financial resources, academic program and performance, social life and adjustment coupled with loneliness, housing, daily living (food, etiquette, etc.), orientation in conjunction with the adjustment problems, and extracurricular experiences. Upon returning home, they face different problems which are nevertheless related to some of the problems they face in the U.S.

There have been a number of publications which are geared to either problem solving or critical evaluations of the programs the U.S. educational institutions offer. Edgerton (1975) states that planning programs for foreign students require sensitivity and skill. He stressed that foreign students must be given an early and accurate idea about their options. Altscher (1976) argued that American colleges and universities should provide specific counseling for foreign students to solve their unique problems. Walter (1978) states that the use of counseling services by foreign students has been minimal, because American counselors have not been trained to provide effective support to them. Understanding the cultural differences between the counselor and the student is a prerequisite for effective counseling; therefore, counselors should be trained to identify these differences (Walter, 1978 and Helms, 1978). Bohn (1957)

found that one-third of the foreign students in his study thought that their study programs in the United States did not meet their academic needs. He attributed this problem to be due mainly to communication problems. Deutsch (1965, 1970) reported that many foreign students felt much of the theoretical knowledge they learned was not applicable to their home countries' problems. Kelly (1966) warned that foreign students were not prepared for positions they were going to hold at home since they were taught with equipment they would never use again, and that they were getting second-class degrees. Vorapipalana (1967) also reported that AID participants from Thailand criticized their programs for not providing enough practical experience and for being too short. On the other hand, Ogunbi (1978) found that foreign students in the College of Agriculture and Natural Resources had a more optimistic view regarding the relevancy of their programs to the home country's developmental needs than others.

Sanders and Ward (1970) pointed out a number of issues worthy of serious consideration. First, the training of foreign students is based mainly on U.S. experience within a U.S. setting. Second, American professors have little or no international experience and are unfamiliar with human and economic issues that concern foreign students. Finally, degree requirements are narrowly prescribed, and foreign students have little opportunity to mold their programs to fit their needs.

Making U.S. education more relevant for foreign students has been investigated. Suggestions center around taking the students' needs into consideration. Coombs (1961) argued for adjusting the programs to the needs of foreign students. Stone (1969) recommended that the training of foreign students from developing nations include identification of research problems, maintenance skills, and administrative techniques.

Kaplan (1970) argued that NAFSA must encourage educational institutions and the government to adjust to the presence of foreign students by making every effort to insure relevance of an U.S. education to global problems. There is, however, indication that none of the above suggestions have been pursued to any considerable degree. NAFSA (1972) reported that the departments tended not to accommodate foreign students' special needs and problems and did not offer courses to help foreign students understand how training could be transferred to their home countries. Chiang and Klinzing (1975) suggest that foreign student programs should avoid more breadth, concentrate on practice and field work, and emphasize the benefits and pitfalls of technological transfer. Findley (1975) stresses the need to consider the status of the chemical industry in the student's country in planning programs for foreign chemical engineering students.

Canter (1967) emphasized the need to use foreign students as resources in classroom situations, including developing countries' experiences in the scientific curricula, and developing seminars of foreign specialists from certain geographic regions.

Moore (1970) proposed: 1) flexible work regulation for foreign students, 2) study programs which would integrate and apply class learning to situations in foreign students' home countries, 3) courses relevant to development and barriers to change, and 4) internships that would approximate human and environmental conditions in foreign students' home countries.

In summary, the literature suggests diversified needs of varying importance existing among foreign students. They may be broadly categorized as: 1) academic needs, 2) linguistic needs, 3) other cultural-related needs, 4) interpersonal needs, 5) financial needs, 6) daily-living materialistic needs, and 7) post-return needs.

### Independent Variables Suggested in Literature

In this section, we will review those publications in which certain independent variables were identified as significantly related to problems and needs of foreign students. The independent variables we will identify are recurrent ones throughout the literature.

#### Age

Age as an independent variable has been investigated in relation to academic performance (e.g. Hountras, 1956; Pavri, 1963; Selltiz et al., 1963; El-Lakany, 1970; Elting, 1970; Hj:zainuddin, 1974; Chongolnee, 1978; and Siriboonma, 1978), adjustment problems (e.g. DuBois, 1956; Gaither and Griffin, 1971; Sharma, 1971; and Han, 1975), perception of educational experiences (Lather, 1978), and probability of returning home after graduation (e.g. Chu, 1968; Ritterband, 1968; Das, 1969; Cortes, 1970; Myers, 1972; and Shin, 1972).

As for the relationship between age and academic performances the evidence seems to be inconclusive. While El-Lakany (1970), Pavri (1963), Siriboonma (1978), and Elting (1970) reported that older students had higher academic performance, Hj:zainuddin (1974) found that younger students performed better academically. On the other hand, age was found not to be related to academic performance by Hountras (1956) and Selltiz et al. (1963).

The relationship between age and adjustment problems is more consistent in the literature. Gaither and Griffin (1971) stated that adjustment problems for younger foreign students were minimal compared to those of older students. A similar conclusion was reached by Han (1975). Han reported that foreign students who were more than 30 years old encountered more major academic problems than students less than 30 years old. This

may be due to differential emphasis on academic work by different age groups as suggested by Hull (1978). He found that older students were more involved with academic concerns. Younger foreign students were also found to have higher food adaptation scores (Ho, 1965). However, Clark (1963) found that older students were more satisfied with their overall experience in the U.S. On the other hand, Sharma (1971) found that age upon arrival at the U.S. had little effect on foreign student problems.

Lather (1978) in the study of foreign student perception of educational experiences, found that neither importance nor satisfaction were related to age. He observed no difference between age groups on any of the four measures he used, i.e. the quality, adaptability, and utility of: 1) faculty advisor's activities, 2) course work, 3) university activities and services, and 4) cross-cultural communications.

The relationship between age and the probability of remaining permanently in the U.S. is again inconclusive. Das (1969) concluded that younger foreign students were less likely to remain in the U.S. after completing the degree than older students. Cortes (1970) found that older Philippine students were less likely to stay permanently in the U.S. than younger ones. The studies by Myers (1970) and Shin (1972) also indicated that older students were more likely to return home than younger ones. Spaulding and Flack (1976) arrived at the same conclusion based on their review of literature. Meanwhile, Chu (1968) reported that there was no significant relationship between age upon arrival in the U.S. and non-return in his study.

### Sex

Sex difference has been investigated in relation to, for example, academic performance (e.g. Hountras, 1956; El-Lakany, 1970; Melendez-Craig, 1970; Hj:zainuddin, 1974; and Chongolnee, 1978), problems encountered in

the U.S. (e.g. Porter, 1962; Bouenozos and Leamy, 1974; and Collins 1976) adaptation and adjustment (e.g. Clubine, 1966; Dunnett, 1977; and Pruitt, 1977), and perception of educational experiences (Lather, 1978).

El-Lakany (1970) found that females had better academic performance in terms of GPA than males. Hj:zainuddin (1974) found that females performed better academically in the first year only. On the other hand, Hountras (1956), Melendez-Craig (1970), and Chongolnee (1978) concluded that sex was not related to academic performance. It is worth noting that none of these studies reported that male students had better academic performance than female students.

The results of studies concerning the relationship between sex and problems encountered in the U.S. concur that females encounter more problems than males. Porter (1962) reported that females checked more problems than males in the Michigan Foreign Student Problem Inventory. Females were also found to experience more discrimination and transportation problems (Bouenazos and Leamy, 1974). However, Collins (1976) found that male foreign students experienced significantly more problems than females. Dunnett (1977) stated that the sex difference of foreign students was an important factor in adaptation in the U.S. Female foreign students were found to be more familiar with resource persons on campus than males (Clubine, 1966). However, Pruitt (1977) reported that male African students were better adjusted to the U.S. environment than female counterparts. Lather (1978), in the study of foreign student perception mentioned earlier, found no difference between males and females. All in all, sex difference appears to be an important factor to be considered.

In a recent study of foreign alumni from developing countries, Myer (1979) found male foreign alumni get involved in their countries' development more than females.

### Marital Status

Marital status is an important variable in foreign student studies. According to the literature, it appears that married and unmarried foreign students on U.S. campuses will have different lifestyles, needs, and problems. Marital status was found to be related to academic performance (e.g. Hountras, 1956; Pavri, 1963; and El-Lakany, 1970), problems experienced (e.g. Pavri, 1963; Han, 1975; and Collins, 1976), satisfaction with U.S. experience (e.g. Clark, 1963 and Siriboonma, 1978), and probability of staying permanently in the U.S. (e.g. Das, 1969).

Married students were found to have higher academic achievement than singles in the studies by Hountras (1956), Pavri (1963), and El-Lakany (1970), while Melendez-Craig (1970) and Chongolnee (1978) reported that marital status was not related to academic performance of foreign students.

Dunnett (1977) found that marital status was an important factor in the adaptation of foreign students. More married students than single students were found to be satisfied with their U.S. experience (Clark, 1963, and Siriboonma, 1978). In a study by Han (1975), it was concluded that unmarried foreign students encountered more major problems than married students. Similar results were reported by Collins (1976), while Pavri (1963) found the opposite to be true.

Regarding "brain drain," married students whose families remained at home were less likely to stay in the U.S. (Palmer, 1968, and Das, 1969). Spaulding and Flack (1976) reviewed the literature and concluded that married students were more likely to return home than single students.

### English Language Proficiency

For foreign students in the U.S., English language proficiency is likely to be of central importance. Most of what they do in terms of

academic work and social conduct depends on their English proficiency. The majority of the research findings agreed that proficiency in English was positively related to academic performance (e.g. Sugimoto, 1966; Ohuche, 1967; Halasz, 1969; Uehara, 1969; Elting, 1970; Melendez-Craig, 1970; and Ayers and Peters, 1977). On the other hand, Selltiz et al. (1963) found that facility with English was not related to academic performance.

Lack of proficiency with English is often thought of as the source of foreign student social problems. Morris (1960) found that difficulty with English was negatively related to foreign students' satisfaction with their stay and contact with U.S. nationals. Nenyod (1975) concluded that some social, housing, and food problems were due to lack of proficiency in English.

English language proficiency was also found to be related to social and emotional adjustment (e.g. Selltiz et al., 1963, and Hull, 1978) and adaptation to American food (Ho, 1965). Spaulding and Flack (1976) concluded that students who had difficulties with oral or written English tended to have both academic and social adjustment problems.

Foreign alumni who had better command of English during their study in the U.S. get involved in their countries' development more than those who had some difficulty with English (Myer, 1979).

#### Academic level

A number of studies investigated academic level in its relationship to academic performance (e.g. Hountras, 1956), adjustment and problems

thereof (e.g. Porter, 1962; Quinn, 1975; Collins, 1976; and Stafford, 1977), satisfaction with U.S. experience (e.g. Siriboonma, 1978) and non-return (e.g. Das, 1969). Hountras (1956) found that the degree held at admission was related to academic achievement.

Research on problems encountered by foreign students indicates an inverse relationship between academic level and the total number of problems. Forstat (1951) found that academic level was an important factor affecting the total number of adjustment problems of foreign students. Porter (1962) found that undergraduates checked more problems in the Michigan International Student Problem Inventory than graduates. Collins (1976) found that the kinds of problems encountered by foreign students vary by academic level. Stafford (1977) found that undergraduate foreign students reported greater difficulty in English language, academic course work, finances, food, unfriendliness of the community, and maintaining cultural customs than did graduates. Siriboonma (1978) reported that academic level was positively related to satisfaction with the U.S. experience. However, Quinn (1975) found that undergraduate foreign students had the most successful adjustments, while Ph.D. students had the least successful adjustment. Undergraduate students were also found by Selltiz et al. (1963) to establish more social relationships than graduate students.

There is agreement among research results that the higher the academic level of foreign students, the less likely they are to return home. Borhanmanesh (1965) found an inverse correlation between academic status and the likelihood of return. Similar findings were reported by Das (1969 and 1971). Comay (1969) found that graduate study was the single most important variable explaining migration. While the above

studies implied linear relationship between academic level and brain drain, Myers (1972) reports a curvilinear relationship. He found that both undergraduates and Ph.D. students were less likely to return home than master's degree students. However, Spaulding and Flack (1976), in their literature reviews, concluded that Ph.D. graduates were least likely to return home. On the other hand, in a study of foreign alumni from less developed countries, Myer (1979) found that those who received Ph.D. degrees are more satisfied with their U.S. education, use their education more and transfer what they learned to their countries more than those who got bachelor's or master's degrees.

#### Sponsorship

Sponsorship has been studied in relation to academic performance (e.g. Hountras, 1957; Clark, 1963; Pavri, 1963; Ohuche, 1967; El-Lakany, 1970; and Chongolnee, 1978), adjustment to U.S. environment (e.g. Pruitt, 1977), concern with relevancy of U.S. education, and non-return (e.g. Myers, 1972; Chu, 1968; Palmer, 1968; Das, 1971; and Glazer, 1974).

Hountras (1957) found that sponsored foreign students had better academic performance than self-supporting students. Clark (1963) found that foreign students who held government grants had higher performance than those who did not. Similar results were found by El-Lakany (1970). Other studies reported that students who had some kind of financial support performed better than those who did not (Pavri, 1963 and Chongolnee, 1978). On the other hand, Ohuche (1977) found no difference in academic performance between Nigerian undergraduates who had government scholarships and those who did not.

Pruitt (1977) found that sponsorship was related to social adjustment to the U.S. environment; government sponsored students had better adjustment.

However, Hull (1978) found that foreign students without scholarships were more likely to interact with U.S. nationals.

Research findings agree that foreign students sponsored by their home governments are more likely to return home and more often intend to return than self-sponsored students or students sponsored by non-national sources (Myers, 1967, 1972; Chu, 1968; Palmer, 1968; Das, 1971; and Glazer, 1974).

Myer (1979) found that alumni who had some kind of sponsorship tend to use their education more than others in their countries.

#### Major fields

The field in which a foreign student majors may determine the probability of his success in academic performance and in the problems he faces. In addition, the relevance of U.S. education for the country of origin may differ by fields.

Chongolnee (1978) found that the academic performance of foreign students differed by major field. The engineering majors had the highest performance followed by physical sciences majors, then biological science majors. Social science majors had the lowest academic performance. Hountras (1956) found that a proportionately greater number of foreign students majoring in social and physical sciences incurred academic failure than those in other fields. By contrast, a proportionately smaller number of foreign students majoring in humanities experienced failure. In another study, Han (1975) found that foreign students majoring in engineering have more problems with English than students in other disciplines.

Quinn (1975) found that field of study was related to successful adjustment. The results show that students majoring in liberal arts had more successful adjustment than those in the scientific disciplines.

Similar results were found by Hull (1978) who reported that foreign students majoring in art and humanities tended to interact with U.S. nationals more than other majors.

The probability of using the skills and competencies gained in U.S. education also differed by discipline. Spaulding and Flack (1976) suggested that natural scientists and engineers tended to be more inclined to use their new competencies than those in humanities and social sciences; and that the latter were more oriented toward social change. Myer (1979) found the use of U.S. education and their involvement in their countries' development also varied by major field among foreign alumni. Those who majored in agriculture and education had higher use and greater involvement than others.

Field of study was also found to vary regarding the likelihood that a foreign student may stay permanently in the U.S. Spaulding and Flack (1976) pointed out that foreign students majoring in medicine, science, engineering, or the humanities were less likely to return home than others. This generalization was based on several studies (e.g. Henderson, 1964; Cortes, 1970; and Myers, 1972).

#### Length of stay

After reviewing the literature, Spaulding and Flack (1976) concluded that length of sojourn has remained a confirmed, significant variable related to adjustment problems, academic performance, decisions to stay abroad, satisfaction with training, and alienation and marginality.

Length of stay was found to be related to adjustment. Ho (1965) found that length of stay was related to food adaptation among students from oriental countries. Quinn (1975) found that years at Stanford were positively related to successful adjustment. Hull (1978) found that length of stay in the U.S. was positively related to the degree of adjustment.

In a study of foreign students' knowledge of legal rights and civil regulations, Guglielmo (1967) found that length of stay was related to the students' knowledge of immigration, automobile operators' responsibilities, income tax and social security, housing, employment, purchasing and installment buying.

The relationship between length of stay and foreign student problems seems to be rather complex. Some foreign student problems were found to diminish by length of stay while others may grow. With regard to problems with English, research findings show that foreign students experience English difficulties during the first year and that the difficulties decreased after one year (Lozada, 1970 and Gabriel, 1973). A similar trend was observed with regard to the relationship between length of stay and social problems. Tanenhaus and Roth (1962) found that students who had been at New York University for less than six months complained much more frequently about the lack of opportunity to meet other people than those who had been there for six months or more. However, this trend is not common for all problems. Shattuck (1961) found that some foreign students who had been in the U.S. for one or more years often remained seriously maladapted and did poorly in academic work.

As for the relationship between length of stay and the total number of problems, there is disagreement among research findings. On one hand, Porter (1962) found that foreign students who had been at Michigan State University for 13 or more months checked more problems on the Michigan International Student Problem Inventory than did those who had been there for one year or less. On the other hand, Day (1968) reported that the number of problems foreign students experience did not increase by length of stay, but that the specific kinds of problems might change. Sharma

(1971) found that the length of stay had little effect on problems of foreign students.

The relationship between length of stay and the likelihood of returning home is more consistent. There is agreement that the likelihood of returning home declines as the length of stay extends. Das (1969) found that foreign students who studied in the U.S. for two or more years were less likely to return home than those who stayed here for one year. Similar results were found by Myers (1972), Shin (1972), and Thames (1971). Spaulding and Flack (1976) concluded that foreign students who lived abroad for an extended period of time were less likely to return home. However, Niland (1970) reported that this was true only for students from certain countries.

In Myer's (1979) study of foreign alumni from developing countries, length of stay in the U.S. was found to be positively related to foreign alumni's satisfaction with their U.S. education.

#### Region of the world and country of origin

Sharma (1971) found that students from South Asia had better academic adjustment than those from the Far East or Latin America. Chongolnee (1978) found that Asians had better performance than others. Spaulding and Flack (1976) concluded that the problems of foreign students tended to vary depending on the country or region of the world from which they came. Hull (1978) also found that goals, adjustment, and problems of foreign students varied by country of origin.

Most of the multi-national and multi-regional research on foreign students indicates that foreign students from different regions in the world differ in terms of their adjustment and the problems they encountered in the U.S. Hountras (1956) reported that African students had the

fewest problems. He also found that students from the Near East, the Far East, and Latin America had more difficulties than those from other regions. Collins (1976) found that the number of problems faced by foreign students varied by region of origin. Asians had the largest number of problems and the Caribbeans had the lowest. Stafford (1977) found that Africans had the greatest difficulty in the U.S. and Latin Americans had the least. When difficulties were considered separately, he found that: a) in terms of English, orientals and Southeast Asians had the greater difficulty, while those from India, Pakistan, and Africa had the least; b) in terms of future vocational plans, students from the Orient, India, and Pakistan had the highest difficulty while those from Latin America and Southeast Asia had the lowest; c) Africans had the greatest difficulty with unfriendliness of the community; and d) Asians had the greatest difficulty with social relations, while Latin Americans had the least. Lather (1976) in the study of foreign student perceptions found no difference on the basis of region with regard to the importance and satisfaction of the aspects he investigated. Selltiz et al. (1963) found that the national background was related to emotional adjustment. Quinn (1975) found successful adjustment depended upon the regions from which students came. He reported that European and Canadian students had the highest adjustment followed by Middle Eastern students, then Latin American students. Hull (1978) found that Africans were most likely to face discrimination. Iranians were most likely to have academic problems.

Myer (1979) found that foreign alumni's use of their U.S. education and their involvement in development varied by their region in the world. Africans tend to use their education and get involved in development more than others.

### Size of school

The problems foreign students may face appear to differ by size of school. Previous research indicates that the size of the university influences the problems and satisfactions of foreign students. Selltiz et al. (1963) found the size of the university to be negatively related to the likelihood for foreign students to form social relations with U.S. students, but positively related to emotional adjustment. They also found that size of university was not related to academic adjustment. Nenyod (1975) concluded that foreign students attending small institutions had a greater number of academic problems, a smaller number of housing and food problems, and a smaller number of social problems than those attending medium sized or large institutions. No difference was found regarding communication, financial, religious, and personal problems. It seems, accordingly, that foreign students at small schools face fewer problems in all areas except academic work.

### Orientation

Orientation programs are often considered as tools to help foreign students meet their needs, overcome their problems, and facilitate their adjustment to American life. However, research findings are not conclusive about the effects of orientation.

Selltiz et al. (1963) found that attending orientation was likely to increase the extent of social relations formed with U.S. nationals by Asian students. But this was not the case for other foreign students. Comparable results were reported by Lozada (1970) who found that orientation programs encourage personal contacts and friendships. Longest (1969) found that foreign students participating in orientation had lower trans-cultural anxiety scores.

Orientation programs were found to increase the knowledge of foreign students. Kimmel (1969) found that there was information gain as a result of a one week orientation. Longest (1969) reported that foreign students who attended an orientation program had significantly higher knowledge of the university's regulations than those who did not. Longest also found that foreign students who attended an orientation program had higher English language test scores and higher academic performance. Chongolnee (1978) found that orientation had an effect on academic performance, while Kimmel (1969) found that an orientation had little effect on attitude.

Myer (1979) found that foreign alumni who had more predeparture information, in terms of counseling on U.S. education, use their education more than others. Haroush (1977) emphasized the importance of pre-sojourn orientation based on his study.

#### Living arrangements

Selltiz et al. (1963) found that living arrangements were significantly related to the extent students formed social relationships. Foreign students who lived in dormitories established more social relationships than those who lived in apartments.

Siriboonma (1978) found that living arrangements were related to the degree of satisfaction of foreign students. Students living in the university married student housing were the most satisfied while those living in private housing were the least satisfied. Wilson (1975) found that living on campus and having an American roommate are related to high social activities and involvement with Americans.

#### Employment at home

Employment status and/or opportunities at home were studied in relation to perceived relevance of education and migration.

Ford (1969) found that foreign students who did not have a job waiting at home were more apt to consider their educational programs as

moderately or highly relevant than those who did., while those who had a job waiting tended to have some strong reservations about the relevance of their educational experience. Spaulding and Flack (1976) suggested that students with vague career expectations tended to be more satisfied with their U.S. education than those whose objectives were more clearly defined.

Das (1969) found that foreign students whose countries provide greater employment opportunities were more likely to return home after graduation. Borhanmanesh (1965) found that Iranian students who perceived better employment opportunities at home tended to return. Cortes (1970) found similar results with Philippine students. Ritterband (1968) also found that foreign students who did not have jobs waiting at home were more likely to immigrate. Spaulding and Flack (1976) concluded that those who did not expect discrimination or unemployment at home tend to return.

Foreign alumni who had a job waiting at home while they studied in the U.S. tend to get more involved in their countries' development than those who did not (Myer, 1979).

#### Previous international experience

Selltiz et al. (1963) found that prior foreign experience was positively related to academic and emotional adjustments of foreign students. It appeared to have a positive effect on the extent of social involvement of non-European students with U.S. students. Wilson (1975) found that previous international experience was related to social involvement both with Americans and non-Americans. Roudiani (1976) found that previous international experience was related to world mindedness among foreign students. Hull (1978) found that foreign students who had no previous international experience were more likely to report problems

in adjustment to local food, local language, relations with the opposite sex, contact with local people, and recreation. Students who had traveled abroad for more than one month had fewer adjustment problems.

#### National status accorded

Morris (1960) is perhaps the only investigator who looked into this variable extensively. He found slight support for the relationship between national status variables and adjustment variables. Even though this variable is scarcely investigated other than by Morris, on the basis of sociological perspectives, we decided to include this variable and also to include the individual's perception of his or her status as accorded by others.

Independent variables suggested to be highly relevant to needs of foreign students in the literature include: age, sex, marital status, English language proficiency, academic level, sponsorship, major field, length of stay, region of the world and country of origin, size of current enrollment of school, orientation, living arrangement, jobs waiting at home, previous international experience, and prestige accorded to home country.

There were other variables suggested in the literature. The reasons we decided not to include them were lesser importance of variables suggested in the literature and/or possibility of enormous additional space needed in the questionnaire.

#### IV. THEORETICAL ORIENTATION

##### Conceptual Framework

In this section, we will discuss how we arrived at the need items used in our questionnaire. We felt it would not be a proper approach to ask open-ended questions to assess the needs of foreign students, considering our sample size was going to be large. We decided to formulate "need items" to which our respondents could react. Our objectives in formulating need items were: 1) to tap on the cogent needs of foreign students and 2) to include, among others, the areas of needs requested for an inquiry by our sponsoring agency, i.e. relevancy of degree programs, access to extracurricular professional activities, interpersonal relations with U.S. nationals, orientation, and housing.

A common understanding of human beings is that they have various needs, and that they tend to behave in order to satisfy those needs. Needs can be divided into two categories: physiological needs and social-psychological needs. Physiological needs are basic to human beings, and there seems to be a general agreement as to the nature of these needs among the literature (e.g. Seidenberg and Snadowsky, 1976; Berkowitz, 1969; and Maslow, 1954).

Social-psychological needs are those which an individual has by virtue of the fact that he or she resides in a social environment and lives in relation to other human beings. Therefore, such needs are principally the results of social learning (Lindgren, 1973), which reflect one's past experience as a member of a society and one's present social milieu. There tends to be greater variation regarding social-psychological needs recognized in the literature. While physiological needs can be

modified in their intensity by social learning, social-psychological needs are even more responsive to such modification (Lindgren, 1973).

Since our subject of inquiry was foreign students not as biological organisms per se but as social beings, emphasis was placed on their social-psychological needs more than their physiological needs. Furthermore, in the above vein, theoretically we expect foreign students would have diversified social-psychological needs due to their heterogeneous sociocultural backgrounds and current social environments. Therefore, in order for us to identify specific needs of foreign students, we tried to examine the aspects of their cultural background which had provided them with orientations in daily life and the social system where they functioned as members (Parsons et al., 1965). Upon this general theoretical perspective, we attempted to identify needs of foreign students.

The social system in which the foreign students were situated was analyzed with the focal point on the students. Merton's (1957) concepts of "status-set" and "role-set" were used to identify the components of the social system of our concern, i.e. a U.S. university or college community. The "status-set" is the complexity of status (i.e. positions) a person occupies by virtue of being a member of a social system, and the "role-set" is a set of roles a person is to play upon occupying a position. (We will use the term "position" instead of "status" in the following discussion, since the latter has a popular connotation of prestige which we wish to avoid conveying in our discussion.)

We identified the following five positions a foreign student may occupy, among other possible positions, by virtue of being enrolled at a U.S. university or college:

1. A student at a college or university.
2. A member of the local U.S. community.

3. A member of one's own family, if married.
4. A member of one's family remaining in the home country.<sup>3</sup>
5. A citizen of one's home country abroad.

Within these five positions, the emphasis was placed upon the positions where one plays various roles in U.S. daily life, i.e. the first three positions.

For each of the first three positions, we recognized a set of major roles one is expected to play as follows:

For Position 1: The role of a student to faculty members, foreign student advisors, and other staff members; the role of a fellow student to U.S. students and to other foreign students from one's own country and from other foreign countries; and the role of a scholarship student to the funding agency.

For Position 2: The role of a foreign sojourner to U.S. residents; the role of a fellow countryman to members of the local group from his country; the role of a neighbor; the role of a customer; and the role of a community member to local officials.

For Position 3: The role of a spouse, the role of a parent, and other familial roles to those with whom one resides such as one's brothers and sisters.

Even though we chose to emphasize the above three positions and sets of roles, we recognized, to a certain extent, the multiplicity of roles foreign

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We recognize one needs to keep playing these roles even away from one's own family to some extent. However, we limited our immediate concern to the family roles in the U.S.

students maintain regarding positions 4 and 5. Such roles include the role of a son or daughter to one's family at home, the role of an employee to the employer at home, the role of a foreign citizen to U.S. immigration officials, and the role of a citizen to one's home country government and its representative in the U.S. Some of these roles were also taken into consideration in our study.

Once the roles of foreign students were identified, we attempted to identify their needs with regard to performing those roles. Maslow (1943) ranked basic human needs in the following order of importance: physiological needs (e.g. hunger, thirst); safety needs (e.g. security, order); belongingness and love needs (e.g. affection, identification); esteem needs (e.g. prestige, success, self-respect); and need for self-actualization (i.e. the desire for self-fulfillment).

Our literature search presented us with the following needs of foreign students as identified or implied by previous studies: 1) academic needs, 2) linguistic needs, 3) other culture-related needs, 4) interpersonal needs, 5) daily-living materialistic needs, and 6) post-return needs. We recognized immediate associations of those needs of foreign students with some of Maslow's basic needs, granting that most of them could be argued as related to all the basic needs. Academic needs are part of self-actualization as well as esteem needs; linguistic needs are relevant to all the basic needs; financial needs and daily-living materialistic needs are at least immediately related to physiological needs and safety needs; and post-return needs are closely related to all the anticipated basic needs. All in all, foreign students' needs as identified in the literature are pertinent to basic needs of foreign students as human beings.

To identify specific needs among the above broad categories of needs, we examined the roles we identified in terms of relevant aspects of the social system in which foreign students were placed and the cultural background which was likely to create needs among them while studying in the U.S.

We developed the following twelve categories of specific need items. Some categories were geared to only a specific position of a foreign student, such as being a university or college student, yet other categories cut across their multiple positions, such as being a member of a local community as well as being a student. Categories<sup>4</sup> were arranged in such a way as to provide a logical progression to the respondent in filling out the questionnaire, rather than analytic conceptualization for the researcher. In selecting need items for each category, we kept in mind the multiple positions a foreign student would occupy and the multiple roles he or she would play along with the needs already recognized in the literature. The following is a brief description of each category:<sup>5</sup>

1. Informational needs: this category included need items pertaining to academic information a student would like to obtain upon arrival. We also included other informational needs he or she would feel as a newly arrived member of the local community,

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<sup>4</sup> Since categorization was determined substantively, we recategorized them to arrive at composites. Construction of composites are presented in the section of composite construction in the chapter on methodology, pp. 59.

<sup>5</sup> Need items in each category are found in Appendix C, Questionnaire.

such as information about housing, recreational facilities, health care, etc. In addition, we included the culture-related need items, such as information regarding norms of the local community.

2. Degree program needs: this category was limited to the position of a student and its roles. The needs regarding degree program procedure, arrangements and planning were dealt with in this category. The relevant role relationships considered were a foreign student's relationship with academic advisor, other faculty members, other students, and the agency which was sponsoring his or her study in the U.S.
3. Degree program relevancy needs: first of all, we began with examining the meaning of relevancy itself. Needs of foreign students would vary, depending on the definition of relevancy. A question of "relevant to what" was primary. We included items for the following variety of ways the U.S. degree program could be relevant to students: a) relevant to one's future job, b) relevant to the current needs of one's home country, c) relevant to future needs of one's home country. In addition, we included other items which were indirectly concerned with relevancy of the program such as international experience among faculty members and thesis research in one's home country. We limited our consideration to the future and current roles of a student in his or her professional capacity in choosing items for this category.
4. Extracurricular professional activity needs: this category included professional activities mostly of an off-campus nature.

These were an immediate part of the degree program and reached beyond what would normally be offered to students as part of a work experience and attending professional meetings. For this category, our concern was limited to the position of a student mainly and, to a lesser degree, a member of the local community.

5. Academic life needs: this category dealt with needs of being a student and the roles associated with it. We included needs regarding academic procedures such as course requirements and exams, needs regarding others such as faculty advisors with whom students would form role relationships, and needs regarding academic facilities, such as library materials of international nature and office spaces.
6. Financial needs: this category impinged on every role a student could play. Therefore, we attempted to create need items which would uncover financial needs related to the student's life as a whole. Items included varied from a need for money for schooling to a need for finding a job for one's spouse. Some procedural needs such as banking and obtaining a work permit were also included.
7. Needs regarding local community life in the U.S.: this category of needs related to foreign students being also members of a local U.S. community. The question we raised was what students would do as members of a U.S. local community. The items included: needs regarding their daily life, such as food, religious practices and recreational activities; needs in terms of interpersonal relationships with other residents; and some procedure-gearred needs, such as income tax, medical care, and insurance.

8. Housing needs: several aspects of housing were considered in formulating need items in this category. Adequacy and furnishing of living quarters, as well as interpersonal relationships in obtaining housing and making arrangements (e.g. living with a U.S. national), and the legal aspects of housing arrangements were included.
9. Family life needs: the need items included in this category were applicable to only those students with spouses and children residing with them. We paid special attention to those needs pertaining to education of spouses and children in the U.S.
10. Interpersonal relationship needs: in every position delineated previously, students would engage in interpersonal relationships with others. In this category we included persons who would have a primary importance for a student living in the U.S. college or university community. They were academic advisors, degree-program committee members (in the case of graduate students), course instructors, foreign student advisors, and other students. The entire category was intended to determine the degree of needs felt by students in formulating good relationships with these persons.
11. Pre-return and anticipated post-return needs: two categories of need items regarding returning home were included. First, we created need items to assess informational needs students might have before returning home regarding shipping and immigration.

The second category was needs a student would anticipate after returning home. This category was created in order for us to better understand the type of situation to which students would be returning and types of concerns they might have. This might give us some insight as to why some students fail to return home and why some students would consider their education here as irrelevant. We included needs regarding jobs, salary or wages, housing, research opportunities and facilities, resources and professional materials in respective fields, and continuity in professional growth.

12. Linguistic needs: this category of need items was developed in terms of importance students might place on various types of linguistic skills. They included comprehension, reading, writing and speaking of English and other related language skills, such as taking class notes. We decided to assess perceived importance and self-evaluation of each skill by respondents.

To account for variation of those needs as perceived by respondents, we chose a number of independent variables to be included in the questionnaire. We identified those independent variables in the literature search: age, sex, marital status, English language proficiency, academic level, sponsorship, major field, length of stay, region of the world, country of origin, size of school, orientation experience, living arrangement, job prospects in home country, previous international experience, and prestige accorded to home country.

Theoretically, students' reactions to the need items we chose would vary due to their heterogeneous sociocultural experiences and current social situations.

We considered that the independent (or predictor) variables selected from the literature represented reasonable measures of experiential and current situational variations among the students. Sex, age, and marital status were part of these variations. English language proficiency, as measured by TOEFL scores and by self-evaluation, would reflect one's experience (due to the fact one had received language training). In one's current social situation, objective and subjective measures of English proficiency would also be an attribute along with sex, age, and marital status. For a similar interpretation, we considered the academic level would represent part of one's past experience (the fact one had that much schooling experience) and one's current social situation. In addition, we included the grade point averages and perception of barriers in forming personal relationships with others as both experiential and current situational variables.

Furthermore, the length of stay in the U.S. and at the current school of enrollment, the region of the world and the country of origin, orientation experiences, and previous international traveling experiences were part of experiential variables. Other social situational variables included were sponsorship, major field, school size, living arrangement (type of facility and roommate), and perception of prestige accorded to oneself and one's home country. Future plans and intention to return were added as part of the situational variables which we believed to be related to needs.

There are numerous hypotheses which could be tested with variables included in this study. For this report, however, we had to limit our hypothesis testing to the hypotheses which we consider to be of primary interest based on the literature and on our pre-test results.

### Hypotheses

The following hypotheses are stated at the general level. For hypothesis testing, each general hypothesis was reduced to several empirical hypotheses by use of operational measures. Need composites created in each category<sup>6</sup> were used as operational measures of various needs along with operational measures of independent variables. The operational measures are found in Appendix C, Questionnaire. The directions are not predicted in the following general hypotheses. However, some of the empirical hypotheses are formulated with directions, i.e. negative or positive relationships between variables, based on our pretest and/or previous studies conducted by others. Empirical hypotheses and details of the findings are presented in the DATA BOOK, and major findings are found in the chapter of Findings in this report.

In the following hypotheses, both importance and satisfaction of needs refers to those perceived by students themselves.

Hypothesis 1: Perceived importance of needs is greater than satisfaction of the same needs.

Hypothesis 2: Importance of educational needs does not differ from importance of other needs.

Hypothesis 3: Satisfaction of educational needs does not differ from satisfaction of other needs.

Hypothesis 4: Importance of needs varies by sponsorship category of students.

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<sup>6</sup> See pages 61-71.

Hypothesis 5: Satisfaction of needs varies by sponsorship category of students.

Hypothesis 6: Importance of needs varies by age of students.

Hypothesis 7: Satisfaction of needs is positively related to age.

Hypothesis 8: Importance of needs varies by sex.

Hypothesis 9: Satisfaction of needs varies by sex.

Hypothesis 10: Importance of needs varies by marital status of students.

Hypothesis 11: Satisfaction of needs varies by marital status of students.

Hypothesis 12: Importance of needs varies by the command of English students have.

Hypothesis 13: Satisfaction of needs varies by the command of English students have.

Hypothesis 14: Importance of needs varies by graduate vs. undergraduate status of students.

Hypothesis 15: Satisfaction of needs varies by graduate vs. undergraduate status of students.

Hypothesis 16: Importance of needs varies by major field of students.

Hypothesis 17: Satisfaction of needs varies by major field of students.

Hypothesis 18: Importance of needs varies by length of stay in the U.S. and at the school.

Hypothesis 19: Satisfaction of needs varies by length of stay in the U.S. and at the school.

Hypothesis 20: Importance of needs varies by the region of the world from which students come.

Hypothesis 21: Satisfaction of needs varies by the region of the world from which students come.

Hypothesis 22: Importance of needs varies by whether or not students participated in an orientation program.

Hypothesis 23: Satisfaction of needs varies by whether or not students participated in an orientation program.

Hypothesis 24: Importance of needs varies by the amount of previous international experience students had.

Hypothesis 25: Satisfaction of needs varies by the amount of previous international experience students had.

Hypothesis 26: Importance of needs varies by whether or not students have jobs waiting for them in home countries.

Hypothesis 27: Satisfaction of needs varies by whether or not students have jobs waiting for them in home countries.

Hypothesis 28: Importance of needs varies by school size.

Hypothesis 29: Satisfaction of needs varies by school size.

Hypothesis 30: Importance of needs varies by living arrangements of students.

Hypothesis 31: Satisfaction of needs varies by living arrangements of students.

Hypothesis 32: Importance of needs varies by prestige accorded to one's country.

Hypothesis 33: Satisfaction of needs varies by prestige accorded to one's country.

## V. METHODOLOGY

In this chapter, we will present the sampling procedure, data collection, and construction of composites.

### The Sampling Procedure

The population of this study was defined as all the foreign students from developing nations who: 1) were studying toward an academic degree at U.S. colleges and universities; 2) had spent at least one regular academic quarter or semester at the school where they were enrolled at the time of sampling; 3) were enrolled at colleges and universities that had at least 300 foreign students attending<sup>7</sup>.

To decide what constitutes a developing nation, we relied on the list of developing nations provided by AID. In addition, with the approval of NAFSA and AID, we included Iran, Iraq, Libya, Taiwan, and Turkey based on their similarity to the AID-defined developing nations in terms of social and economic indicators (World Bank, 1977). A total of 102 nations were included in this survey.

### Selection of Schools

We were obliged to include as many students sponsored by AID as possible in this study. AID-sponsored students, however, were not uniformly distributed among schools in the nation. Hence, obtaining a large number of them required sampling the schools that had many AID students more heavily than from those schools that had few AID students. Therefore, the schools were divided into three strata on the basis of AID student enrollment.

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7. The reasons for these restrictions were presented in the Phase I report (Lee et al., 1979).

In stratifying schools, we used the data presented in Open Doors, 1977-1978 (Julian et al., 1979) and the information provided by AID.

We used 1978 data to estimate 1979 enrollment for the sampling purposes. According to our research design (Lee et al., 1979), we first stratified schools into five approximately equal strata by AID enrollment. Then we combined the bottom three strata to form Stratum III for the cluster sampling, while the first and second strata became Strata I and II respectively. The resulting stratification of schools and estimated numbers of students in each strata are presented in Table 1.<sup>8</sup>

Table 1. The Estimated<sup>a</sup> Distribution of Clusters and Students in the Survey Population

Strata	Estimated Number of AID Students per Cluster	Estimated Number of Clusters (Schools)	Estimated Number of Students	
			Total	AID Students
Stratum I	20 and over	35 <sup>b</sup>	40,037 <sup>c</sup>	1,461
Stratum II	7-19	37	33,522	451
Stratum III	6 or less	97	60,367	89
Total		169	133,926	2,001

<sup>a</sup> Estimated with the 1977/1978 data in Open Doors (Julian et al, 1979) and information provided by AID.

<sup>b</sup> Originally there were 36 schools in Stratum I including Iowa State University. Since ISU students were surveyed in Phase I, we deleted them from the population of Phase II.

<sup>c</sup> Including AID students

<sup>8</sup> Figures in Table 1 differ from the estimated numbers in our research design. This discrepancy arises because Table 1 is based on 1977/1978 data, while the estimated numbers in the research design were based on 1976/1977 data.

We applied different cluster sampling rates to the three strata to ensure a large number of AID students in the sample. As stated in the research design (Lee et al., 1979), we chose 18 schools (clusters) from Stratum I and six schools each from Strata II and III. Schools were chosen within each stratum by systematic sampling techniques with a probability proportionate to size.<sup>9</sup> Before sampling, schools within each stratum were arranged according to geographic location in the U.S. in order to ensure fair representation of the different regions in the sample.

#### Selection of Students within Each School

##### 1. Securing the list of students

Once the schools were chosen, we contacted the office of foreign student advisors at each school. A letter was sent, stating the objectives of this project and asking their cooperation. We asked each office to provide us with a list of foreign students enrolled at their school as of spring, 1979. Follow-up letters were sent to those who did not respond; those who did not respond after the follow-up letter were contacted by telephone. (The first list came to us as early as mid-April, and the last one as late as mid-September, 1979.) Due to a variety of school regulations, we received three types of responses.

- a. Most of the foreign student advisors expressed their willingness to participate in the study and subsequently

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<sup>9</sup> The sampling procedure used is known as a multi-stage cluster sampling with probability proportionate to size. At each stage of sampling, a systematic sample was taken with stratification of certain characteristics for sampling units. (For a technical discussion of this sampling procedure, see, for example, Kish, 1965, or Babbie, 1979.)

sent us lists of foreign students enrolled at their schools (referred to "inhouse sampling schools.")

- b. Foreign student advisors at six schools expressed their willingness to participate in the study, but declined to provide a list of their students. They were willing to draw samples from their students and mail the questionnaires. We decided to accept their offer and send them the necessary instructions (referred to "outside sampling schools.")
- c. Foreign student advisors at three schools were unwilling, for a variety of reasons, to participate in the study. Their schools were dropped and replaced by other schools. In choosing the substitutes, we decided to impose the restrictions that the substitute must be from the same stratum and located in the same geographic region as the original school. Foreign student advisors at the newly chosen schools were contacted and their cooperation was secured.

## 2. Preparing the sampling frame for each school

According to our approved plan, we were to use three different sampling rates within each school. One rate was to be applied to AID students, the second rate to students from Iran and Taiwan, and the third rate to the remaining students from developing nations. The rationales for using the three different rates were given in the Phase I report (Lee et al., 1979). We were also to stratify the students by country of origin before we took the systematic sample in order to have fair representation of countries proportionate to the number of students from

each country.<sup>10</sup> In stratifying students by country of origin, countries with less than ten students on campus were grouped together. In view of the above considerations, we proceeded preparing the sampling frame (list) as follows: 1) the names of non-degree students and practical trainees were excluded; 2) the names of students from developed nations as well as the oil-rich countries of Kuwait and Saudi Arabia were deleted; 3) AID sponsored students were identified; 4) students from Iran and Taiwan were identified, and 5) students from the remaining countries were identified, whenever their number exceeded nine.<sup>11</sup>

### 3. Sampling the students

Decision as to the initial sample size for each stratum was made with several considerations in mind. First, data were to be collected in fall, 1979 using a spring 1979 list. Many students on the lists were expected to graduate or leave before data collection, possibly one-fourth of the students on each list. Therefore, the initial sample size should be large enough to compensate for those who could not be reached. Second, we did not anticipate the return rate to exceed 50 percent based on our pretest. Among "outside sampling schools", the best return rate we could

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<sup>10</sup> In our research design, we also proposed to stratify students by undergraduate and graduate. However, most of the lists we received did not include classification. Therefore, we had to abandon stratification by classification in our sampling.

<sup>11</sup> One list did not show countries of origin. We used judges, those who were knowledgeable of names in Iran and Taiwan, to identify students from these countries. For other countries, only in this particular list, we took a sample without stratifying by country other than Taiwan and Iran. We also applied a larger initial sample for this school, since we intended to remove questionnaires filled out by students from those countries excluded above.

anticipate was one third, due to the difference in the procedure.<sup>12</sup> Therefore, we needed to draw a larger initial sample at an outside sampling school. With those considerations, we decided to draw initial subsamples as following:<sup>13</sup> 80 students at each of the eighteen<sup>14</sup> schools in Stratum I (120 for the "outside sampling schools"), 230 students at each of the six schools in Stratum II (340 for the "outside sampling schools"), and 285 for each of the seven<sup>15</sup> schools in Stratum III (428 for the "outside sampling schools").

From each prepared sampling frame (the list of students), we selected all the AID students participating in degree programs. Among the remaining, a systematic sample (see, for example, Kish, 1965) was drawn for each school with stratifications by country of origin. The number of students remaining on the list, counting the students from Iran and Taiwan as one half of the actual numbers, was divided by the initial subsample size

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<sup>12</sup> We felt asking foreign student advisors at those schools to keep records of returns would be out of the question due to the amount of work and time needed to do so. We decided to ask them to make only the first two contacts out of the four planned.

<sup>13</sup> Since we used multi-stage cluster sampling with probability proportionate to size within each stratum, we were able to draw an equal subsample from each cluster within a stratum.

<sup>14</sup> One of Stratum I schools declined participation after lengthy negotiation on our part. Therefore, we had 17 schools in the first stratum. At the time we came to the conclusion that this particular school would not participate in the survey, it was too late for us to contact another school.

<sup>15</sup> One of the schools originally chosen in Stratum I did not have enough AID participants on their 1979 list, so it was reclassified into Stratum III. Therefore, we had seven schools in Stratum III. Another school was added to Stratum I.

mentioned above. If the outcome included a fraction, it was rounded off to the lower integer. That number became the sampling interval at each school. Due to rounding off in the computation of the sampling interval, the initial sample sizes varied slightly among schools in the same stratum and were greater than the planned initial subsample sizes. The sampling interval was twice as long for students from Taiwan and Iran.<sup>16</sup>

The distribution of the total number of schools and the number of schools chosen by strata and geographic location within the U.S. is presented in Table II. Table III presents the number of students chosen for each stratum. In order to ensure the anonymity of students and schools in this study, we will not identify the sample by school.

The AID sample size from the seventeen schools in the first stratum was considerably smaller than we had expected. This was mainly because many of the names on the AID list did not appear on the schools' lists. In order to increase the AID sample, we decided to include all AID students who were in the remaining schools in Stratum I. Consequently, all the AID students in Stratum I were chosen as part of our sample. To reach these "supplementary" AID students, we depended on the AID list of April, 1979, and contacted them directly, first through foreign students advisors' offices<sup>17</sup> and later through respective departments.

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<sup>16</sup> The decision to apply one-half of the sampling rate to students from Iran and Taiwan was made in our research design due to their extremely large numbers among foreign students. Thus, we were able to include more students from other countries.

<sup>17</sup> Overall, we received a great deal of assistance from those offices for which we were very grateful.

Table II. The Sampled Schools by Geographic Location within the U.S. and Stratum<sup>a</sup>.

Stratum Region	Stratum I		Stratum II		Stratum III		Total	
	No. of Schools in the Region	No. of Schools Chosen	No. of Schools in the Region	No. of Schools Chosen	No. of Schools in the Region	No. of Schools Chosen	No. of Schools in the Region	No. of Schools Chosen
North East	13	9	21	3	42	2	76	13
North Central	2	1	1	1	1	0	4	2
North West	2	1	2	1	3	1	7	3
South East	3	1	5	1	3	1	17	3
South Central	4	3	5	0	21	2	35	5
South West	6	3	3	0	21	1	30	4
Total	35	17 <sup>b</sup>	37	6	97	7 <sup>c</sup>	169	30

a. Stratum I: Schools with more than 19 AID students enrolled.

Stratum II: Schools with between 7 and 19 AID students enrolled.

Stratum III: Schools with less than 7 AID students enrolled.

b. Originally, we had 18 schools, one of which declined participation belatedly. It was one of the North Eastern schools.

c. Originally, we had six schools. One school chosen in Stratum I was reclassified into Stratum III due to a drastic change in its AID student enrollment. It was a South Central school.

Table III. The Numbers of Students Chosen in Each Stratum

Stratum	Number of Schools Chosen	Non-AID Students	AID Students	Total
I	17 (18) <sup>a</sup>	1,873	576 412	2,449 412
II	6	1,486	68	1,554
III	7	2,099	9	2,108
Total	30	5,458	1,065	6,523

<sup>a</sup> Supplementary AID students were added from the remaining schools in Stratum I.

As described above, we applied different sampling rates to different strata, and to different substrata (AID students, students from Taiwan and Iran, and the rest) within each cluster (school). Also due to rounding off in computation of the sampling interval, the sampling rate varied slightly from school to school within the same stratum. For data analyses, the above needed to be taken into account in order to arrive at population estimates. Weights were used to make adjustments for different sampling rates under the guidance given by a survey sampling specialist at the Department of Statistics, Iowa State University (Fuller, 1979). In data analyses, where deemed necessary, Super Carp (Hidioglou et al., 1979) was used. Super Carp is a statistical program that takes strata and clusters in the sample into account in computation of population parameter estimates in statistical analyses.

### Data Collection

Thirty schools were selected according to the procedure described in the section on sampling. We contacted those thirty schools in March, 1979, with a letter introducing the NAFSA project and its objectives to the foreign student advisors.

Six schools declined to provide the in-list of students due to school regulations. Instead, they agreed to assist us by sampling according to our instructions and mailing out the questionnaires and follow-up postcards to the students on their campuses ("outside sampling schools"). The remaining twenty-four schools sent us their lists of students which arrived from April through September 1979 ("inhouse sampling schools"). In addition, we decided to contact all the AID students in the remaining Stratum I schools (the "AID supplementary group").<sup>18</sup>

In all three approaches, we used a mail questionnaire (See Appendix C, DATA BOOK ). The differences were in the methods of contacting the students.

For "outside sampling schools", the foreign student advisors at each school drew a sample of students and made the first two contacts as stated below with our instructions as to sampling and mailing. For both contacts, first class mail was used in order to obtain the most returns with only two contacts.

For "inhouse sampling schools", we drew a sample of students for each school from the list provided to us by the office of foreign student advisors. To this group of students, we made four (in some cases five)

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<sup>18</sup> The reason for adding this group is presented in the section on sampling procedure, page 46.

contacts as listed below. The first two contacts were mailed by the bulk rate and the remaining three by first class. The bulk rates were selected initially for economical reasons, since our initial sample size was large and the bulk rate was about one-tenth of the first class rate. We hoped to reach as many students as possible with the first two contacts by bulk rate and then later change to first class rate. The switch to first class was determined due to the fact that: 1) the lists were outdated and 2) the bulk rate does not guarantee services of forwarding and returning to the sender.<sup>19</sup>

For "the AID supplementary group", we contacted all the AID students on the AID list of April 1979, who were enrolled in the remaining schools in Stratum I. All five contacts were carried out by first class mail. In addition, "Address correction requested" was printed on the envelopes for this group. We used the first class rate for all the five contacts along with the address correction requested in order to increase our chance of reaching this group of students at the correct addresses. However, the address correction request was effective only in a very few locales.

The five contacts made were as follows:<sup>20</sup>

1. First contact: a copy of the questionnaire was sent to the respondents with a letter of introduction to the research project.

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<sup>19</sup> We proposed to use bulk rate mail for all the contacts in our research proposal. Data collection was delayed until fall due to the delayed starting of the project. This change made it inevitable for us to use the first class mail to take advantage of forwarding services, since in many cases, spring addresses were no longer correct.

<sup>20</sup> Selected responses were checked in terms of waves (different contacts) No significant differences were found by waves.

2. Second contact: a reminder postcard was sent approximately ten days after the first contact to all the persons in the sample.
3. Third contact: a second copy of the questionnaire, with an accompanying letter, was sent to the respondents who had not replied approximately two weeks after the second contact was made.
4. Fourth contact: a second reminder postcard was sent approximately ten days after the third contact to those who had not as yet replied.
5. Fifth contact: a third questionnaire was sent two weeks later to the sample from eight schools which had very low response rates.

The original proposal had called for four contacts. However, in an effort to increase our final useable sample size, we considered the following situational factors and made the fifth contact with selected schools.

1. The "recency" of lists varied from school to school, even though we asked for spring term lists.
2. Mail services differed greatly by locale. In a very few locales our "Address Correction Requested" elicited some response. In many locales, there was none.
3. By observing the response rates in late November, we noticed they differed among schools according to the above two factors. In some cases, at that time, the response rate was as projected in the proposal (50%); in others, it was quite low. We concluded that in some locales, our first and second contacts (sent as bulk rate) had not reached all the intended students.

Therefore, we decided to make a fifth contact among student in the eight lowest schools in terms of return rates at the end of November. In

addition, we also decided to contact our AID supplementary group for the fifth time.

"Inhouse sampling schools" were divided into two mailing sets. The first set was the schools which started the fall school term in late August or early September, 1979, and the second set was the schools which started the fall term in late September. Among 24 "inhouse sampling schools", fifteen schools fell into the first set and the remaining nine schools became the second set.

The first contact was made about two weeks after the average starting date of the fall term in each set. We began contacting in late September with the first set and in mid-October with the second set and the AID supplementary groups, and concluded data collection in December, 1979. The period between the first and the second contact was extended, when we realized that the bulk rate mails tended to get held at the post offices as lower priority mails.

The response rates varied from school to school and by procedure categories. Among "inhouse sampling schools", the response rates ranged from 23.2% to 64.6%, with an average return rate of 42.8%. Among "outside sampling schools", the rate ranged from 13.5% to 40.2% with an average return rate of 27.9%.<sup>21</sup> These rates were underrated rather than overrated, since we suspected numerous questionnaires had not reached respondents nor were they returned to us. Five schools exceeded the expected return rate of

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<sup>21</sup> The return rate was computed as (no. of responses) / (the initial sample size - no. of undelivered cases) x 100. Undelivered cases were considered as mislistings. Undelivered cases are mostly those who left the U.S.

50% among the "inhouse sampling schools", and two of the "outside sampling schools" exceeded our expected return rate (33.4%).

The return rate of the AID supplementary group was 54.6%. However, the most serious drawback of this group was the high number of undeliverable cases due to the dated character of the list. Forty-four percent of the persons we contacted could not be reached, mostly because they had gone home. In the case of the school lists, about twenty percent of the sample were returned to us as undelivered.

We had gathered 1,856 useable cases at the end of data collection which included 322 AID students. Altogether 30 schools participated in this survey.<sup>22</sup> (See Table IV.)

#### Composite Construction

Categories of need items in the questionnaire were formed on the basis of substantive considerations as described in Conceptual Framework, , page 33 , and the assumed logical order on the part of respondents. Therefore, for our data analysis,<sup>23</sup> to formulate composites each of which would include unidimensional items, factor analysis was conducted using the pretest data, and importance scores of need items were factor analyzed. A number of composites were formulated corresponding to the number of factors uncovered by the analysis. Each need item was assigned to the

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<sup>22</sup> Unfortunately, one of the outside sampling schools in Stratum I was considerably behind in data collection due to extenuating circumstances. Consequently, we could not include the result of this school in this report. In our future publications, however, we will include this school's results.

<sup>23</sup> The program used for the factor analysis was PA2 in SPSS (Nie et al., 1975).

Table IV. Sample: Initial Contacts and Responses

Strata	Initially Contacted	Undelivered & Returned <sup>b.</sup>	Responded AID	Responded Non-AID	Total Responded	Rate of Responded <sup>c.</sup>
I <sup>a.</sup>	2449	513	210	578	788	40.7%
I (AID supplementary)	412	302	88	---	88	80.0%
II	1554	311	30	512	542	43.6%
III	<u>2108</u>	<u>415</u>	<u>5</u>	<u>486</u>	<u>491</u>	<u>29.0%</u>
Total	6523	1540	333	1576	1909	38.3%

a. The figures include one school mentioned on page 59. For the data analysis of this report, the total sample size used was 1856 including 322 AID students. The school which was left out will add 53 students including 11 AID students. Their data will be included in Phase III, if funded.

b. These figures are included in initial contact figures.

c. A response rate was computed as total responded/ (number of initially contacted - undelivered) x 100. These rates include outside sampling schools.

composite on which it had the highest loading. Items that did not load on any of the factors strongly enough were excluded from composite formulation. Composition of each factor was further examined from a substantive point of view, whether or not it made sense to have the items together as a composite. Then, we computed Cronbach's Alpha to ensure reliability of each composite.<sup>24</sup> The reliability values are presented in Table V, on page 73.

#### Information Needs

Factor analysis of the 24 items in this category indicated that there were three factors referring to distinct dimensions. The three composites resulting from this were university information, community information, and foreign student life information.

1. Needs for university information. This composite consisted of seven items pertaining to various types of information about the university rules. These items were:

Need to know information about...

- a. The registration procedure.
- b. The procedure to begin your degree program.
- c. Examination requirements and regulations for a degree.
- d. English language requirements.
- e. The efficient use of the library.
- f. The role of the academic advisor.
- g. The role of the major professor.

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<sup>24</sup> Alpha was computed using SPSS reliability program (Hull and Nie, 1979). The minimum Alpha of .60 was considered to be acceptable. Alpha values were computed again with part of national data which were from schools similar to the pretest schools (Warren, R., 1979).

2. Needs for community information. This composite consisted of eight items pertaining to various types of information about local community living. These items were:

Need to know...

- a. How much it costs to live here.
- b. Housing facilities.
- c. Housing costs.
- d. Recreational activities available on campus.
- e. Recreational activities available off campus.
- f. Health services available.
- g. Health insurance available.
- h. Ways of doing things in the U.S.

3. Needs for foreign student life information. Three items related specifically to needs for foreign students living in the U.S.

These items were information on:

Need to know...

- a. Community services available to foreign students and their families.
- b. Availability of foods and spices you are accustomed to using .
- c. Information on sponsors' rules about families, medical care, and traveling.

#### Degree Program Needs

The fourteen items related to the degree program were subjected to factor analysis. Consequently two composites were formulated.

1. Needs regarding academic planning. This composite included three items pertaining to having one's degree program formed. These items were:

Need for...

- a. Having an academic advisor assigned to you before your arrival.
- b. Receiving credit for academic work done at home.
- c. Sharing responsibility in planning your degree program with your academic advisor.

2. Needs regarding academic relationships. This composite included four items that described various interpersonal relationships essential for developing one's degree program. These items were:

Need for...

- a. Having your academic advisor available when needed.
- b. Having faculty members spend enough time with you.
- c. Having faculty members with international experience to guide you.
- d. Opportunities to do some teamwork with American students.

#### Academic Program Relevancy Needs

Factor analysis of the eleven items in this category resulted in two composites.

1. Needs for relevancy of education. Seven items regarding relevancy of U.S. education to various conditions at home were included in this composite. These were:

Need for...

- a. A program relevant to your future job in your country.
- b. A program relevant to the present needs of your country.
- c. Level of technology applicable to the future of your country.
- d. Obtaining basic knowledge in your area of study.

- e. Having international materials included in courses.
  - f. Training to apply knowledge.
  - g. Exchange of visiting professors between universities of your country and those in the U.S.
2. Needs for training to apply knowledge. Three items that described various aspects of training to apply knowledge to real world situations were in this composite. These were:
- Need for...
- a. Training for leadership role.
  - b. Training to introduce change(s) in your country.
  - c. Seminars with students from several departments to deal with problems of national development.

#### Extracurricular professional activity needs

Factor analysis showed two underlying factors among the five items in this category. The composites created because of this result were as follows:

1. Needs for extracurricular learning opportunities. The three items included were related to extracurricular activities for gaining or exchanging knowledge. These items were:
- Need for...
- a. Opportunities to give information about your country in educational situations.
  - b. Opportunities to attend off-campus professional meetings.
  - c. Learning how universities provide assistance to local communities.
2. Needs for practical experience. Two items in the composite pertained to activities involving practical experience. These were:

Need for...

- a. Opportunities to put into practice what you learn in class.
- b. Work experience in your field before returning home.

Academic Life Needs

The items in this category were subjected to factor analysis and, as a result, formed two composites.

1. Needs regarding university environment. Six items included in this composite pertained to academic environment and regulations. These were:

Need for...

- a. Understanding the grading system.
- b. Understanding course requirements of instructors.
- c. Opportunities to discuss course work with faculty members.
- d. Getting adequate advice from your academic advisor.
- e. Being respected as a fellow human being by U.S. students.
- f. Having magazines and newspapers from your country available in the university library.

2. Needs for facilitating course work. The items included were:

Need for...

- a. Being able to take class notes well.
- b. Having extra time in taking exams to compensate for language difficulty.
- c. Having opportunities to discuss course work with U.S. students.
- d. Having publications in your area of study from your country available in the university library.

### Financial Needs

Ten of the items included in this category formed one composite as a result of factor analysis. These items were:

Need for...

- a. Having enough money for school.
- b. Having enough money for basic living expenses.
- c. Having enough money to receive necessary medical care.
- d. Receiving money from your sponsor without delay.
- e. Getting help in banking.
- f. Getting help from student financial aids.
- g. Finding a part-time job.
- h. Finding a part-time job at the university related to your degree program.
- i. Finding a job for your husband or wife.
- j. Getting a work permit for off campus jobs.

### Community Life and Interpersonal Relationship Needs

Items under these categories were grouped into three underlying factors by factor analysis. They were identified as needs regarding living in a U.S. community, needs for sharing activities with U.S. nationals, and needs for interaction with faculty and staff.

1. Needs regarding living in a U.S. community. The ten items included were:

Need for...

- a. Getting accustomed to U.S. food.
- b. Observing religious practices.
- c. Being able to behave according to one's values and beliefs.
- d. Having sufficient time for social and recreational activities.

- e. Feeling welcomed by U.S. nationals in the local community.
  - f. Having U.S. nationals correctly informed about your country.
  - g. Having local people treat foreign students courteously.
  - h. Obtaining medical care.
  - i. Obtaining medical insurance.
  - j. Knowing income tax regulations.
2. Needs for activities with U.S. nationals. The six items included in this composite were:
- Need for...
- a. Having recreational activities with U.S. nationals.
  - b. Visiting U.S. families.
  - c. Sharing housing with U.S. nationals.
  - d. U.S. friends.
  - e. U.S. friends with whom you can discuss personal problems.
  - f. Social activities with U.S. nationals.
3. Needs regarding relationships with faculty and staff. Five items referring to interaction with members of faculty and staff were included in this composite. The items were:
- Need for...
- a. A good relationship with your advisor.
  - b. Good relationships with the degree program committee members.
  - c. Good relationships with course instructors.
  - d. A good relationship with your foreign student advisor.
  - e. Friendly treatment by other university staff members.

#### Housing Needs

As the result of factor analysis, six items in this category formed one composite. The items included were:

Need for...

- a. Having adequate housing facilities on campus.
- b. Having adequate housing facilities off campus.
- c. Obtaining necessary furniture at a reasonable cost.
- d. Borrowing necessary furniture.
- e. Getting housing you want without discrimination.
- f. Being informed about legal rights and duties when you sign a contract.

#### Family Life Needs

Factor analysis indicated two distinct factors underlying the seven items included in this category. Therefore, two composites were formed corresponding to these factors. The resulting composites dealt with needs of spouses and needs of the family.

1. Needs of the spouse. Three items related specifically to the needs of the accompanying spouse were included in this composite.

They were:

Need for...

- a. Finding enough activities for your spouse.
- b. English language training for your spouse at a reasonable cost.
- c. Appropriate educational opportunities for your spouse.

2. General family needs. The remaining four items in this category were included in this composite. They were:

Need for...

- a. Social activities which include children.
- b. Finding appropriate child care.
- c. Finding appropriate educational opportunities for children.
- d. Getting to know U.S. neighbors.

### Pre-return Needs

The three items which formed a composite were those pertaining to information which might be needed when one would be preparing to return home. They were:

Need for...

- a. Knowing how to send books and household items home.
- b. Knowing information, in advance, on tax clearance regulations, sailing permit, etc.
- c. Knowing the cheapest means of transportation to return home.

### Anticipated Post-return Needs

As a result of factor analysis on eleven items in this category, two composites were formed. One composite consisted of needs one would anticipate having with regard to material rewards in their home country; the other included needs one would anticipate having for opportunities and facilities in one's profession upon return.

1. Anticipated post-return needs for material rewards. Three items were included in this composite. They were:

Need for...

- a. Finding a job appropriate to your training.
- b. Receiving adequate salary and wages.
- c. Finding appropriate housing.

2. Anticipated post-return needs for professional opportunities and facilities. The eight items included in this composite were:

- a. Having funds for research.
- b. Having facilities to use U.S. training in future jobs.
- c. Having resources to use U.S. training in future jobs.
- d. Receiving the latest professional materials in the field.

- e. Visiting outside your country at intervals to keep in contact with scholars in your field.
- f. Having scholars visit your country for professional consultations.
- g. Publishing in professional journals abroad.
- h. Publishing in professional journals in your country.

#### Linguistic Needs

A list of eight English skills was included. Respondents were asked to indicate the importance of each skill to them. Factor analysis indicated that these eight skills shared one underlying factor, therefore they formed one composite, i.e. needs for English language skills. The skill items were:

- a. Understanding spoken English.
- b. Giving an oral presentation.
- c. Reading (textbooks, journals, etc.)
- d. Writing papers and thesis.
- e. Taking tests.
- f. Taking class notes.
- g. Participating in class discussion.
- h. Conversing with faculty members and other students.

Each need composite was the sum of importance scores of individual need items included in each composite. Corresponding to each need composite, the satisfaction composite was also computed. Corresponding to the category of linguistic needs, we formulated two composites; one was to measure self-evaluation of the English language skills, and the other was to measure evaluation of remedial English language courses with regard to improving respondents' skills.

In addition to the need importance and satisfaction composites, we developed composites pertaining to goals and barriers by factor analyzing the items in these categories.

### Goals

Factor analysis resulted in two goal importance composites. One was to measure importance students placed on primary goals in coming to the U.S., and the other was to measure importance placed on secondary goals. Primary goals were immediate education goals one would try to achieve by coming to the U.S., and secondary goals could be considered as peripheral to the formalized degree program.

1. Primary goals. The three items included in this composite were:
  - a. Obtaining the degree.
  - b. A broad education.
  - c. Specialized skills and knowledge in your field.
2. Secondary goals. Seven items included in this composite were:
  - a. Developing research skills.
  - b. Improving your command of English.
  - c. Gaining practical experience in your field.
  - d. Getting to know U.S. professionals in your field.
  - e. Seeing different parts of the U.S.
  - f. Learning about the U.S.
  - g. Broadening your view of the world.

### Barriers

A set of items were included in this study to assess the extent those items were viewed as barriers in establishing good relationships with U.S. nationals by students. As the result of factor analysis, a composite was formed with the following eight items:

- a. Your religious background.
- b. Your racial background.
- c. Your cultural background.
- d. Your political view.
- e. Your being a foreigner.
- f. Your attitude toward others.
- g. Their attitude toward you.

Table V presents composites and their reliability scores..

Table V. Composites

Composite Names	Number of Items in the Composite	Reliability <sup>a</sup>	Composite Names	Number of Items in the Composite	Reliability
Needs for university information (C1)	7	.83	Housing needs (C29)	6	.84
Satisfaction of the above (C2)	7	.85	Satisfaction of the above (C30)	6	.83
Needs for community information (C3)	8	.85	Spouse's needs (C31)	3	.72
Satisfaction of the above (C4)	8	.86	Satisfaction of the above (C32)	3	.76
Needs for foreign student life information (C5)	5	.64	General family needs (C33)	4	.76
Satisfaction of the above (C6)	3	.64	Satisfaction of the above (C34)	4	.84
Needs regarding academic planning (C7)	5	.70	Pre-return information needs (C35)	2	.79
Satisfaction of the above (C8)	3	.47 <sup>a</sup>	Satisfaction of the above (C40)	3	.85
Needs regarding academic relationships (C9)	4	.79	Anticipated importance of post-return needs for material rewards (C41)	3	.83
Satisfaction of the above (C10)	4	.71	Anticipated satisfaction of the above (C42)	3	.77
Needs for relevancy of education (C11)	2	.84	Anticipated importance of post-return needs for professional opportunities and facilities (C43)	8	.93
Satisfaction of the above (C12)	2	.81	Anticipated satisfaction of the above (C44)	8	.92
Needs for training for application (C13)	3	.71	Importance of primary goals in coming to the U.S. (C45)	3	.79
Satisfaction of the above (C14)	3	.69	Likelihood of achieving the above (C46)	3	.71
Needs for extracurricular learning opportunities (C15)	3	.71	Importance of secondary goals in coming to the U.S. (C47)	7	.84
Satisfaction of the above (C16)	3	.71	Likelihood of achieving the above (C48)	7	.81
Needs for practical experience (C17)	2	.84	English language importance (C49)	8	.91
Satisfaction of the above (C18)	2	.84	English language proficiency (C50)	3	.89
Needs regarding university environment (C19)	6	.86	Usefulness of remedial English courses (C51)	9	.95
Satisfaction of the above (C20)	6	.67	Barriers in establishing good relationships (C52)	7	.84
Needs for facilitating coursework (C21)	4	.67			
Satisfaction of the above (C22)	4	.61			
Financial needs (C23)	10	.88			
Satisfaction of the above (C24)	10	.89			
Needs regarding living in a U.S. community (C25)	10	.82			
Satisfaction of the above (C26)	10	.80			
Needs for activities with U.S. nationals (C27)	6	.83			
Satisfaction of the above (C28)	6	.78			
Needs regarding relationships with faculty and staff members (C35)	5	.86			
Satisfaction of the above (C36)	5	.84			

a. Reliability scores are Cronbach's alpha values computed by SPSS program (Nie et al., 1975). An alpha value less than .60 is not satisfactory for a set of items to form a composite (Warren, 1979).

## VI. FINDINGS

Details of the procedure and the results of data analyses are presented along with tables in Appendix A, in DATA BOOK. In this chapter, we will limit our discussion to the highlights of findings. Findings will be discussed with regard to the hypotheses presented in the chapter on theoretical framework. The discussion on the bivariate analyses besides the hypotheses are presented in Appendix A.

### Results of Hypothesis Testing

We did not test hypotheses with individual need items which would be too comprehensive within the scope of Phase II. Therefore, need composites were used in testing hypotheses. To determine the significance of differences among categories, we chose .01 level (t test) and to determine the substantive significance of correlation, we chose 5% ( $r = .2236$ ) and 10% ( $r = .3162$ ) of one variable accounting for the variation of the other. The composition of each composite is found on pages 61-71.<sup>25</sup>

Hypothesis 1: Perceived importance of needs is greater than satisfaction of them.

For every need composite, the importance composite score was significantly higher than that of the satisfaction composite. For every need

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<sup>25</sup> For the statistical technique of hypothesis testing, see Appendix A, DATA BOOK.

composite students indicated a level of satisfaction lower than that of importance.<sup>26</sup> Therefore, data supports the hypothesis that, to a great extent, needs were not being met at a level approaching their importance.

We regard this gap between importance and satisfaction of needs to be a potential or actual source of frustration among students, especially where the gap is great and high importance is placed. The following five need composites showed wide gaps between importance and satisfaction scores (listed in descending order):

1. Need for practical experience.
2. Pre-return information needs.
3. Anticipated post-return needs for professional opportunities and facilities.
4. Financial needs.
5. Anticipated post-return needs for material rewards.

Thus, needs for practical experience were the most serious problem. This composite was rated as the second most important among all the composites, and, at the same time, the least satisfied. This composite included two highly correlated items: need for opportunities to put into practice what you learn in class and need for work experience in your field before returning home. The second problem area was needs for pre-return information. This gap perhaps can be filled more readily by colleges and universities, while the first one poses a variety of difficulties. The third and the fourth on the list indicated that students were quite concerned with needs they would have after returning home, and they seemed to have rather realistic or pessimistic views as to the extent those needs would be met. The financial

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<sup>26</sup>For this hypothesis only, we also examined individual need items and found only three items having higher satisfaction scores than the importance scores. They were "need to know about clothes needed", "need for getting accustomed to U.S. food", and "need for observing one's religious practices."

needs composite was unexpected; however, it did rank only tenth in terms of importance.

The following five composites had the narrowest gap between importance scores and satisfaction scores (listed in ascending order):

1. Needs for university information.
2. Needs for foreign student life information.
3. Primary goals.
4. Needs for community information.
5. Secondary goals.

Students did not place high importance on needs for university information, yet were highly satisfied with the amount of knowledge they obtained.

This pertains to the types of information which are formally available.

Needs for information on foreign student life was another of the least important and relatively well satisfied needs. This composite included items pertaining to food and spices, services for foreign students, and sponsor's rules, all of which students appeared to find out fairly easily and consequently did not place much importance on them.

We noted that primary goals, such as obtaining the degree and other academic goals, were among the most important and the students tended to be highly confident about achieving these goals. Secondary goals pertaining to broader experiences were ranked quite low in importance, yet associated with anticipation of moderate likelihood of achieving them. Information regarding community living was moderate in terms of importance and rather high in satisfaction. All in all, with regard to goals and information, gaps between importance and satisfaction were the smallest,

indicating less likelihood of frustration<sup>27</sup>. It appears that information was rather readily available, and that students felt quite confident about achieving goals of high importance (see Table VI).

Hypothesis 2: Importance of educational needs does not differ from importance of other needs.

Hypothesis 3: Satisfaction of educational needs does not differ from satisfaction of other needs.

Among twenty-three importance composites of needs, twelve of them were primarily educational, while eleven were not; likewise for satisfaction composites of needs. Data supported both hypotheses. We found half of the primarily educational composites fell into the high score category, while six of the primarily non-educational composites fell into this category. The remaining half of educational composites and the remaining five of non-educational composites constituted the low score category. This distribution was found for both importance composites and satisfaction composites. Perhaps, among the need items we included, the dichotomy of educational vs. non-educational itself may be questionable, since most of the items were educational either directly or indirectly.

Hypothesis 4: Importance of needs varies by sponsorship categories of students.

Hypothesis 5: Satisfaction of needs varies by sponsorship categories of students.

Students were divided into four sponsorship categories by their primary source of support:

- (1) those sponsored by AID, (2) those sponsored by home governments,
- (3) those supported by other scholarships or assistantships, and (4)
- those supported by themselves and/or other private sources.

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<sup>27</sup> Other needs mentioned by students are presented in Appendix B, DATA Book.

Table VI. Importance and Satisfaction of Needs and Differences Between Scores:  
Composite Means, Standard Errors and Item Averages<sup>a</sup>.

Importance Composites					Satisfaction Composites					Differences <sup>c</sup>					
Item Number	b. Number	Item			b. Number	Item			b. Number	Item					
		Mean	SE	Average		Rank	Mean	SE		Average	Rank	Mean	SE	Average	Rank
C1		39.91	.29	5.70	15	37.64	.50	5.38	2	C1-C2		2.33	.58	.33	23
C3		46.26	.26	5.78	11	39.73	.74	4.97	4	C3-C4		6.62	.77	.83	20
C5		15.54	.14	5.18	22	13.77	.15	4.59	8	C5-C6		1.78	.22	.59	22
C7		16.78	.15	5.59	17	14.04	.21	4.68	7	C7-C8		2.88	.26	.96	17
C9		22.86	.12	4.57	23	17.77	.45	3.55	22	C9-C10		5.15	.51	1.03	16
C11		41.99	.27	6.00	9	31.19	.59	4.46	10	C11-C12		10.97	.67	1.57	47
C13		15.92	.11	5.31	18	11.64	.22	3.88	20	C13-C14		4.39	.21	1.46	10
C15		15.60	.11	5.20	21	11.17	.17	3.72	21	C15-C16		4.50	.21	1.50	8
C17		12.72	.08	6.36	2	7.10	.24	3.55	22	C17-C18		5.62	.28	2.81	1
C19		36.68	.24	6.11	5	28.54	.43	4.76	6	C19-C20		8.15	.44	1.36	12
C21		22.82	.15	5.71	14	16.53	.32	4.13	16	C21-C22		6.44	.37	1.51	6
C23		59.26	.46	5.93	10	40.51	.69	4.05	18	C23-C24		18.59	.95	1.86	4
C25		55.83	.34	6.20	4	45.89	.51	5.10	3	C25-C26		10.03	.39	1.11	15
C27		31.85	.23	5.31	18	26.40	.47	4.40	13	C27-C28		5.71	.52	.95	18
C29		34.62	.21	5.77	13	25.86	.42	4.31	15	C29-C30		8.90	.47	1.48	9
C31		17.09	.24	5.70	15	13.03	.34	4.34	14	C31-C32		4.14	.41	1.38	11
C33		23.15	.28	5.78	11	17.90	.28	4.48	9	C33-C34		5.24	.42	1.31	13
C35		30.29	.17	6.06	7	24.75	.51	4.95	5	C35-C36		5.61	.45	1.12	14
C39		18.03	.15	6.01	8	11.97	.17	3.99	19	C39-C40		6.12	.19	2.04	2
C41		18.87	.10	6.29	3	13.65	.26	4.55	12	C41-C42		5.22	.26	1.74	5
C43		48.79	.30	6.10	6	33.04	.49	4.13	16	C43-C44		15.69	.47	1.96	3
C45		19.57	.08	6.52	1	17.74	.20	5.91	1	C45-C46		1.83	.22	.61	21
C47		42.01	.20	5.25	20	35.68	.61	4.46	10	C47-C48		6.44	.64	.92	19

- All the figures are weighted population estimates.
- For names and items included in each composite, see Table V, 3 pp.61-71.
- All the means were found to be significantly different from zero beyond .01 level. Means and SE are those of differences between importance and satisfaction composite scores of individual observations, weighted.

Even though not all composites showed significant differences among the sponsorship categories, we note a tendency which we feel deserves some comment. Over all, the third category of students (predominantly on assistantships) took the high rank in satisfaction of academic needs, while they ranked low in importance of the same compared to the other categories of students. Even though not all rankings indicate statistical significance, this tendency cannot be ignored. This group of students appeared to be least frustrated in terms of academic needs regarding daily campus activities and relationships. This seems to be a reflection of the experiences, opportunities, and a sense of being part of the "system" that students on assistantships have and which may not be experienced by other categories of students. We also noted AID SPONSORED students tended to place the lowest importance on non-academic needs and anticipated needs regarding post-return conditions, even though statistically not significant. These tendencies appear worthy of further investigation.<sup>28</sup>

Hypothesis 6: Importance of needs varies by age of students.

Hypothesis 7: Satisfaction of needs varies by age of students.

Even though most of the composites were significantly related to age of students from the statistical point of view, in none of the composites did age account for 5% or more of variation. The highest correlation coefficient was .17 with the satisfaction composite of needs regarding

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<sup>28</sup> When we compared the gap between the importance score and the satisfaction score of the composites of anticipated needs for post-return material rewards, indeed, AID SPONSORED students indicated the lowest gap, followed by home government-sponsored students. Yet their gap between the level of importance and that of anticipated satisfaction was significantly lower than only that of the self or privately supported group. With regard to the importance and satisfaction score gap on anticipated needs for post-return professional opportunities and facilities, once again, AID SPONSORED students showed the narrowest gap, and, for these needs, the students on assistantships and scholarships showed the largest gap. However, these gaps among sponsorship categories did not differ significantly.

academic planning (C8). The second high was .16 with the importance composite of general family needs (pertaining particularly to concerns with children). Ranking behind that was the third high of .14 with the satisfaction composite of needs regarding relevance of education. The correlations indicate that, even though the amount of variation accounted for each composite was rather low, older students tended to be more satisfied with the way academic planning took place and with relevancy of education offered here. They also tended to place more importance on familiar needs, particularly concerned with children.

Hypothesis 8: Importance of needs varies by sex of students.

Hypothesis 9: Satisfaction of needs varies by sex of students.

For most of the composites, sex categories indicated no significant differences. Sex differences in composite scores were found, however, in four composites, in all of which the female students scored higher than the male students. Those composites were all importance composites: needs regarding academic planning (C7), needs for facilitating course work (C21), anticipated post-return needs for material rewards (C41), and secondary goals (C41). As to the satisfaction composites, there were no significant differences between males and females. Female students tended to place higher importance on academic concerns, both in program planning and course work activities, and secondary goals which go beyond obtaining the degree. They were also more concerned about jobs, salaries, and housing upon returning home than male students. Their concern on these post-return needs may very well reflect the sex discrimination they might face upon return to their home countries.

Hypothesis 10: Importance of needs varies by marital status of students.

Hypothesis 11: Satisfaction of needs varies by marital status of students.

Students were categorized by marital status as follows: (1) single, (2) married, the spouse with the student, (3) married, the spouse at home, and (4) other. The fourth category was not included in the comparison of categories due to its extremely small size.

Marital status did not show significant difference in most of the composites. On the other hand, there were three importance composites where significant differences was found among some categories. Married students, both with or without the spouse here, rated information for foreign student life higher than the single students. Conversely, single students rated needs for activities with U.S. nationals higher than married students, with or without the spouse in the U.S.

There were four satisfaction composites where differences were significant. Married students with the spouse at home were less satisfied with their knowledge of community information. Single students were less satisfied with needs regarding academic planning pertaining to the degree programs than married groups. Married students with the spouse at home indicated higher satisfaction with housing needs than married students with the spouse here, though neither group differed significantly from the single students with regard to these needs. Married students with the spouse at home indicated significantly higher anticipated need satisfaction regarding post-return material needs which include appropriate jobs, salaries, and housing.

Hypothesis 12: Importance of needs varies by the command of English students have.

Hypothesis 13: Satisfaction of needs varies by the command of English students have.

The command of English was measured by two measures; (1) TOEFL score ranges, and (2) the self evaluation composite of English skills (C50). Most of the need composites, both importance and satisfaction, indicated highly significant correlation coefficients from a statistical point of view. However, when the coefficients were examined substantively, TOEFL score ranges did not account for 5% or more of the variation in any one of the composites.<sup>29</sup> The three highest correlation coefficients were found between the TOEFL ranges and the following composites; importance and satisfaction of needs for facilitating course work, and importance of general family needs.

The self evaluation composite of English skills showed several highly significant and substantive relationships with several composites, in accounting for more than 10% of variation in each composite. The correlation was positive for every one of the following relationships: (1) satisfaction of needs regarding university environment, (2) satisfaction of needs for facilitating course work, and (3) likelihood to achieve secondary goals. Stated another way, those students who had greater command of English skills tended to be more satisfied with the university environment; i.e. measured as a composite of understanding the grading system and course requirements, opportunities to discuss course work with faculty members, getting advice from academic advisors, being respected as a fellow human being by U.S. students, and having magazines and newspapers from your

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<sup>29</sup> For this preliminary analysis, correlation coefficients were used. However, we consider ANOVA would be more appropriate for further analysis, since TOEFL scores were recorded by ranges rather than raw scores.

country available in the university library. In addition, they were more satisfied with needs for being able to take class notes well, having extra time in taking exams, having opportunities to discuss course work with U.S. students, and having publications available in one's area of study from one's country at the library. They were more confident in achieving the secondary goals, i.e. obtaining broader experiences, in the U.S. than the others.

The same composite accounted for 5% or more but less than 10% of variation in the following composites; (1) satisfaction with needs for university information, (2) satisfaction with needs for community information, (3) satisfaction with needs regarding academic relationships, (4) satisfaction with needs regarding living in a U.S. community, (5) satisfaction with needs for activities with U.S. nationals, (6) satisfaction with needs for interaction with faculty and staff, and (7) perceived likelihood to achieve the primary goals. The correlation coefficients were all positive.<sup>30</sup> All in all, English language skills appear to be a strong predictor of satisfaction with needs, particularly those of an informational and interpersonal nature.

Hypothesis 14: Importance of needs varies by graduate vs. undergraduate status of students.

Hypothesis 15: Satisfaction of needs varies by graduate vs. undergraduate status of students.

Graduate and undergraduate students did not differ in most of the composites. However, significant differences were noted in seven importance

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<sup>30</sup> In addition, we found the self-evaluation composite of English skills accounted for more than 5% of variation in importance composites of barriers to establish good relationships. Understandably, the correlation was negative in this case. Students with higher command of English placed less importance on the barriers than others.

composites, and in four satisfaction composites. Graduate students placed higher importance on needs for university information than undergraduate students, while they did not differ significantly in terms of satisfaction.

Undergraduate students placed higher importance than graduate students on six composites. They considered needs regarding academic planning more important than graduate students did, while graduate students were more satisfied than undergraduate students with the same needs. With needs for practical experience and needs regarding university environment, the same differences were noted, i.e. higher importance placed by undergraduate students and higher satisfaction indicated by graduate students.

With regard to the following need composites, undergraduate students placed significantly higher importance, while no difference was noted as to satisfaction between these two categories of students: needs for facilitating course work, financial needs, and needs for activities with U.S. nationals. Even though not significant, graduate students did score slightly higher than undergraduate students in satisfaction of the first two, while the third one was scored higher by undergraduate students.

Graduate students indicated higher satisfaction with needs for interaction with faculty and staff, while their importance score did not differ significantly from that of undergraduate students. With regard to most of the needs, students did not differ by graduate and undergraduate status. However, where significant differences were found, graduate students tended to be more satisfied than undergraduate students, while undergraduate students tended to feel stronger needs than graduate students in certain issues.

Hypothesis 16: Importance of needs varies by major fields of study.

Hypothesis 17: Satisfaction of needs varies by major fields of study.

Major fields of study were grouped into the following five categories: (1) engineering, (2) agriculture, (3) natural and life sciences, (4) social sciences, and (5) other. With regard to importance of needs, the hypothesis was supported by ten composites, while no significant differences among categories were found in the remaining thirteen composites.

On needs for academic planning, students in agriculture placed higher importance than engineering students, while they did not differ significantly from the rest. On needs for relevancy of education and needs for training to apply knowledge, agricultural students again placed higher importance than students in engineering and natural and life sciences. On needs for extracurricular learning experiences, they placed higher importance than students in other fields, except they did not differ significantly from students in social sciences. They, along with the fifth category of students, placed higher importance than engineering students on needs for facilitating course work and needs regarding university environments (need for understanding the grading system, course requirements, opportunities to discuss course materials with faculty members, etc.). On housing needs, they placed higher importance than those in engineering and social sciences, while they did not differ significantly from the rest. They placed higher importance than the rest (except those in natural and life sciences) on needs for pre-return information. On anticipated post-return needs both for material rewards and for professional opportunities and facilities, they placed higher importance than those in

engineering and in the fifth category. On anticipated post-return needs for professional opportunities and facilities, students in natural and life sciences also placed higher importance than the rest. At this stage of our data analysis, we were not able to give good explanations as to why students in agriculture stood out in importance composite scores.

With regard to satisfaction, we found significant differences in three composites. With satisfaction of needs regarding academic planning, students in agriculture not only ranked the highest in the importance score but also in the satisfaction score, being significantly different from students in the fifth category. With regard to satisfaction of needs for practical experiences, students in natural and life sciences (the highest) were significantly different from those in engineering (the lowest). Students in agriculture were more satisfied than those in social sciences and the fifth category. We feel the above findings with major field categories can be explained only with further analyses, since we suspect there are some confounding factors we do not know about at this point of data analysis. Since the students in agriculture mostly did not differ from others but ranked high or middle with regard to satisfaction, we consider the above findings with importance scores might be an indication that they were more concerned about those needs for some unknown reasons rather than they were more dissatisfied, particularly with relevancy and application of education, academic matters and post-return situations.

Hypothesis 18: Importance of needs varies by length of stay in the U.S. and at the school.

Hypothesis 19: Satisfaction of needs varies by length of stay in the U.S. and at the school.

Length of stay was measured by the total months of stay in the U.S.

and the total months of stay at the university of current enrollment. Both measures correlated significantly with most of the composites. However, none explained 5% or more of variation in any composite of needs. Among the correlations of the total months of stay in the U.S. with need composites, the highest three were with satisfaction of needs for activities with U.S. nationals, satisfaction of needs for community information, and importance of general family needs. Among the correlations of the total months of stay at the school, the highest three were with the satisfaction scores of the following need composites: 1) needs for university information, 2) needs regarding academic planning, and 3) needs regarding living in a U.S. community. All of the above mentioned correlations were positive.

Hypothesis 20: Importance of needs varies by the region of the world from which they come.

Hypothesis 21: Satisfaction of needs varies by the region of the world from which they come.

The regions included for comparisons were 1) Africa, 2) South and East Asia, 3) Southwest Asia ( or Near East), and 4) Latin America. Europe was excluded from this analysis, since only two countries, Portugal and Turkey, were included in the study and students from these two countries were comparatively very small in number.

As to importance of needs, twelve composite scores were significantly different among the regions. Mainly, the differences were found between African and Asian students, on the composites, while students from Latin America were found not to be significantly different from students of other regions.

African students placed higher importance than students from South

and East Asia on the following need composites: 1) needs for community information, 2) needs regarding relationships with faculty and staff, and 3) anticipated post-return needs for material rewards. In other words, African students ranked highest and South and East Asian students ranked lowest in placing importance on the above listed needs and they were significantly different in their importance scores. African students also placed higher importance than Southwest Asians on needs for foreign student life information, and needs regarding the university environment. Students from Africa placed higher importance than both of these Asian groups on the following need composites: 1) needs for training to apply knowledge, 2) needs for relevancy of education, 3) needs regarding living in a U.S. community, and 4) anticipated post-return needs for professional opportunities and facilities. They, along with students from Latin America, placed higher importance than Asian students on pre-return information needs. Finally, African students placed a higher importance on needs regarding extracurricular learning opportunities than the rest.

Students from Latin America ranked the highest in placing importance on needs regarding academic planning and scored significantly different from those from South and East Asia, the lowest ranked.

Students from Latin America were overall the most satisfied group, while those from Southwest Asia (or Near East)<sup>31</sup> appeared to be the least satisfied group. There were only three satisfaction composites where no significant differences were found among regions: 1) needs regarding academic planning, 2) needs for relevance of education, and 3) needs of the spouse.

Students from Latin America rated the highest in satisfaction, when Europeans were excluded from the comparison, in the following need

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<sup>31</sup> Predominantly students from Iran, even though Lebanon, Israel, Jordan, Iraq, etc. were included in this region. Data had been collected before the "hostage crisis" in Iran took place.

composites and significantly higher than the students from the other three regions: 1) needs for community information, 2) needs regarding living in a U.S. community, 3) needs for activities with U.S. nationals, and 4) housing needs. All of them pertained to community living and interaction with local community members. This might be an indication of self-perceived acceptance of this group being higher than the rest.<sup>32</sup> They also ranked the highest in satisfaction with the following need composites and significantly higher than the following groups:

1) needs for university information (higher than students from both Asian regions), 2) needs for foreign student life information (higher than African students), 3) needs regarding academic planning (higher than

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<sup>32</sup> We analyzed two individual need items relating to perception of acceptance. The satisfaction scores of "need for being treated as fairly as U.S. students by faculty members" and "need for being respected as a fellow human being by U.S. students" were compared among regions of the world. The results indicated the following tendencies. As to the need for fair treatment by faculty members, Southwest Asian students (predominantly Iranians) were the least satisfied group, followed by African students. The most satisfied group was students from Europe, followed by those from Latin America. As to the need for human respect by U.S. students, once again, students from Latin America and Europe were the two most satisfied groups, with students from Southwest Asia and Africa again being the least satisfied groups. For both measures, students from South and East Asia remained at the middle ranking. Even though the average score for any regional group was higher than 4.00 (above the neutral point and on the side of being satisfied rather than dissatisfied), only the average scores of Latin Americans and Europeans exceeded 5.00 (between "somewhat satisfied" and "quite satisfied").

We might add the following preliminary findings; those who were definitely planning to go home were the least satisfied group of students with regard to the need for equal treatment by faculty members. African students, who were least satisfied with the need for human treatment by U.S. students and second least satisfied with the need for equal treatment by faculty members, were the group who indicated the least intention to stay in the U.S. permanently. The European and Southwest Asian students took the first and second high scores in terms of intention to remain in the U.S. permanently, even though the highest average score (European group) was only between "undecided" and "somewhat unlikely to remain permanent" in the U.S.

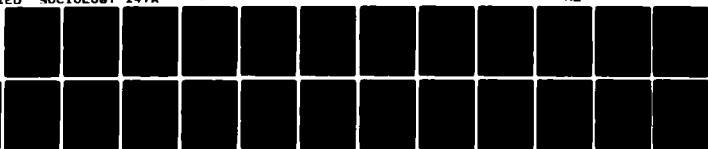
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IOWA STATE UNIV AMES DEPT OF SOCIOLOGY AND ANTHROPOLOGY F/G 5/11  
NEEDS OF FOREIGN STUDENTS FROM DEVELOPING NATIONS AT U.S. COLLE--ETC(U)  
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African and Southwest Asian students), 4) needs for extracurricular learning opportunities (higher than students from Africa and Southwest Asia), 5) needs for facilitating course work and financial needs (along with students from South and East Asia both higher than those from Southwest Asia), 6) general family needs (higher than those from southwest Asia), 7) needs regarding relationships with faculty and staff (about the same as African students, but higher than those from Southwest Asia), 8) anticipated post-return needs for material rewards (along with Africans, the highest ranked, and those from South and East Asia, all higher than those from Southwest Asia), 9) perceived likelihood to achieve primary goals (along with African students higher than the rest, the lowest ranked being those from Southwest Asia), and 10) perceived likelihood to achieve secondary goals (higher than those from Africa and Southwest Asia).

Students from Africa ranked the highest in satisfaction with needs for training to apply knowledge and significantly higher than those from Southwest Asia, the lowest ranked in this composite. Africans also ranked highest in satisfaction with anticipated post-return needs for material rewards and significantly higher than those from both regions of Asia. South and East Asian students scored the highest in satisfaction of pre-return information needs and significantly higher than those from Africa, the lowest ranked in this composite.

Hypothesis 22: Importance of needs varies by whether or not students participated in orientation program.

Hypothesis 23: Satisfaction of needs varies by whether or not students participated in orientation program.

Participation in orientation programs was measured by the following

categories: 1) did not attend at all, 2) attended only in the U.S., 3) attended only in home country, and 4) attended orientations both in home country and in the U.S. As to the importance of needs, variation was noted by orientation experience in the following needs composites: the fourth category of students placed the highest importance on needs for university information and significantly higher than those who did not attend at all (first category). Those who attended orientation programs only in home countries ranked the lowest with regard to importance placed on needs for training to apply knowledge and significantly lower than the other three categories. Those who attended orientation programs only in the U.S. ranked the highest in placing importance on financial needs and significantly different from the rest except for those who did not attend orientation programs at all. However, overall, it appears that orientation experiences did not make much difference in perceived importance of most needs among students. As to satisfaction, none of the composites were found to be significantly different by orientation experience of student.

Hypothesis 24: Importance of needs varies by the amount of previous international experience students had.

Hypothesis 25: Satisfaction of needs varies by the amount of previous international experience students had.

Operational measures for previous international experience were:

1) the total number of foreign countries visited besides the U.S., and 2) the total number of months spent in those countries. Most of the correlation coefficients between each of the above two measures of previous international experience and need composites were statistically significant. However, neither one of the measures explained 5% or more

of variation in any need composite.

The highest three correlation coefficients of total number of foreign countries visited besides the U.S. were with the satisfaction scores of 1) needs regarding living in a U.S. community, 2) needs for activities with U.S. nationals, and the importance scores of 3) needs of the spouse. The correlation coefficients of the total number of months spent in foreign countries besides the U.S. with need composites were, overall, very low. Only one coefficient exceeded  $-.10$ , which was with the importance score of needs for foreign student life information with a negative correlation coefficient. The above results seem to point out that the more international experience one has, the more satisfied one is with needs pertaining to activities in the U.S. community. Also there is less need for finding relevant information, which one might already know or one might feel is unnecessary due to the fact that one might feel less "foreign" in a new environment because of previous international experience.

Hypothesis 26: Importance of needs varies by whether or not students have jobs waiting for them in home countries.

Hypothesis 27: Satisfaction of needs varies by whether or not students have jobs waiting for them in home countries.

Students' job prospects were measured by asking the question, "Are you trying to find a job in your country now?" The responses were recorded in four categories: 1) trying to find a job, 2) planning to find a job, 3) no plans made for finding a job, and 4) job waiting at home. We compared all the four categories even though, according to the above hypotheses, we expected differences to be found between the fourth category and the rest.

Among twenty-three importance composites, seven differed significantly among "job categories" as defined above. Students who had jobs waiting at home ranked highest in placing importance on six need composites. They scored highest for importance of university information and with those looking for jobs in home countries significantly higher than those without a plan made for finding a job in the home countries. Secondly, they scored significantly higher than those who made no plans for finding a job in the home countries in several importance scores, i.e., 1) needs for foreign student life information, 2) needs for extra-curricular learning opportunities, and 3) needs for pre-return information. In addition, those with jobs waiting placed importance on needs for training to apply knowledge significantly higher than those in the first and third categories. On needs for the spouse, they also placed importance higher than those in the first category.

The importance score for the composite of needs for practical experience was significantly different among three categories of job prospects. Those who were not looking for a job but planned to do so and those who did not have plans to do so scored significantly higher than those with jobs waiting in home countries. This need composite was the second highest among all the importance scores and one of the least satisfied in the discussion of Hypothesis 1 (See page 75).

A reaction to this fact might be that those students who did not plan to go home would place high importance on this composite, speculating a practical training opportunity might lead to a permanent job in this country. The difference among the categories of jobs indeed points toward this direction. However, when we controlled further for major fields of study, this difference between those with jobs and without jobs waiting in home countries with regard to needs for practical training

revealed a somewhat different outlook. Among the agricultural majors, those students with jobs waiting at home were the second highest group in placing importance on these needs, following those who had no plan of job finding. Among students in engineering, the highest importance score went to those who were planning to find a job at home, followed by those who had no plan, then by those with jobs, and last by those who were currently looking for a job in home countries. Among the students in natural and life sciences, those with no plan to find a job in home countries had the lowest importance score on this composite, while the highest score was placed by those who were planning to look for a job in the home country, followed by those who already had a job waiting. Based on preliminary analysis, we contend that to associate this high importance placed on needs for practical experience with a hidden motive to remain permanently in the U.S. is premature. Depending upon major fields, it appears that needs for practical experience before returning home may be a real need, so that the returnees would be able to better apply what they learn through their practical experiences.

As to satisfaction of needs, again, those with jobs waiting in home countries led the high scores in ten composites, while no significant differences were found with regard to the remaining 13 composites. Those with jobs waiting were significantly more satisfied than the rest of the students in terms of following composites: 1) needs for relevancy of education, 2) needs for practical experiences,<sup>32</sup> 3) needs for pre-return information, and 4) anticipated post-return needs for material rewards which included job finding as one of the items in the composite.

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<sup>32</sup> However, the average score for this composite among those with jobs barely exceeded the neutral point between dissatisfaction and satisfaction (4.03), while for the other categories of job prospects, the average scores were all in the range of dissatisfaction.

Students with jobs waiting in their home countries were also significantly more satisfied than those who had no plan of finding jobs in home countries, the least satisfied group in ranking, in terms of the following need composites: 1) needs for foreign student life information, 2) needs regarding academic relationships (also higher than those who were looking for a job in home country), 3) needs for extracurricular learning opportunities, 4) needs for facilitating course work, and 5) needs regarding relationships with faculty and staff (also higher than those who were planning to look for a job in home country). This category of students also expressed higher satisfaction with needs regarding living in a U.S. community than those who were looking for jobs in home countries, the least satisfied group in this regard. All in all, having jobs waiting at home appears to be an important predictor of satisfaction in various types of needs.

Hypothesis 28: Importance of needs varies by school size where students are enrolled.

Hypothesis 29: Satisfaction of needs varies by school size where students are enrolled.

Schools of students' current enrollment were measured by using six ranges with 10,000 interval. Correlation coefficients between school size and composites were mostly statistically significant. However, none accounted for 5% or more of variation in any composite. The three highest correlations were with three satisfaction scores of the following need composites: 1) needs for community information, 2) needs for foreign student life information, and 3) needs regarding university environment. The above findings appear to indicate that the larger schools were providing the above types of information and the environment for study to a higher satisfaction of the students than were the smaller schools.

Hypothesis 30: Importance of needs varies by living arrangement of students.

Hypothesis 31: Satisfaction of needs varies by living arrangements of students.

Living arrangements of students were measured in two ways:

1) residence, and 2) with whom they lived. The first measure was categorized as dormitory, married student housing, and other (off-campus) for this analysis. The second measure was grouped as U.S. students, foreign students from another country, students from your country, your spouse, and alone. We did not include the category of U.S. family for the comparison due to the extremely small number of cases.

Hypothesis 30 was supported in terms of four importance composites by residence and also four importance composites by the second measure, "with whom they lived." As expected, those residing in dormitories placed significantly lower importance on needs of the spouse and general family needs. Those in married student housing placed significantly lower importance on needs for practical experience than off-campus residents, and on needs for activities with U.S. nationals than the rest. We do not have an explanation for the former difference at this point, but the latter difference appears to reflect the fact that those who live in married housing tended to interact with their own spouses (and probably other couples) and placed less importance on interaction with U.S. nationals.

With regard to the second measure of living arrangements, Hypothesis 30 was supported in only two composites. Those living alone placed significantly lower importance on needs for foreign student life information than students living with fellow countrymen and with students from other countries. Students living with U.S. students were

also found to place significantly lower importance on the same needs than those who were living with fellow countrymen. Students living with U.S. students indeed placed significantly higher importance on needs for activities with U.S. nationals than the rest.

Hypothesis 31 was supported in terms of three composites for the first measure (residence) and ten composites for the second. Those residing in married student housing were found to be significantly more satisfied than those in dormitories with regard to needs for foreign student life information. They were also more satisfied than the residual category of students (living off-campus) with regard to housing needs. Those residing in a variety of off-campus housing were found to be more satisfied than those in dormitories with regard to pre-return information needs. The latter finding might imply that those who resided off-campus tended to be those who had been in the community longer and that they knew more about this type of information.

Satisfaction of some needs was significantly dependent upon with whom students lived. Those residing with U.S. students turned out to be most satisfied with regard to seven need composites. They were significantly more satisfied than the rest, except those with spouses (with whom they did not differ significantly), with university information needs. They were more satisfied than those living with fellow countrymen or alone with regard to needs for community information. They, along with those living with spouses, were more satisfied than those living alone in terms of needs for foreign student life information and housing needs. These two categories of students were also more satisfied than those living with fellow countrymen with regard to needs for practical experiences. These students were more satisfied than the rest, except

those living with students from other foreign countries, with regard to needs regarding living in a U.S. community and needs for activities with U.S. nationals. In other words, those living with U.S. students or with students from other foreign countries tended to have more satisfactory international living experiences than the other categories.

In addition, foreign students living with U.S. students perceived the likelihood of achieving both their primary and secondary goals highest and significantly higher than those residing with fellow countrymen, which were lowest in likelihood scores. Those residing with students from other foreign countries also perceived significantly higher likelihood of achieving the primary goals than those living with fellow countrymen. However, it is important to note that all categories perceived very high likelihood to achieve the primary goals.

Hypothesis 32: Importance of needs varies by prestige accorded to one's country.

Hypothesis 33: Satisfaction of needs varies by prestige accorded to one's country.

Prestige accorded was measured by students' perceptions as to how U.S. students would rate their home countries in terms of prestige in the world. We contend the prestige which would influence one's needs is the subjective observation accorded to one's own country rather than some sort of objective measure of prestige. We considered foreign students' perception of what U.S. students thought of their countries would be most relevant and would possibly have some impact on their needs and satisfaction while they were in this country.

Most of these correlation coefficients were statistically significant. However, none accounted for 5% or more of variation in importance

or satisfaction scores of needs. The three highest correlation coefficients of the country's prestige measure were with the satisfaction scores of anticipated post-return needs both for material rewards and for professional opportunities and facilities, and the perceived likelihood score of achieving secondary goals. In other words, those who perceived their countries were held higher in prestige by U.S. students tended to be those who anticipated higher satisfaction with post-return needs than those who perceived their countries to be held lower in prestige. The former also perceived higher likelihood of achieving secondary goals for obtaining a broader experience in the U.S.<sup>33</sup>

#### Linguistic Needs

Linguistic needs were measured by two composites: 1) importance of English language skills and 2) self-evaluation of those skills. In addition, we included a composite to measure evaluation of English remedial courses to improve English proficiency.

Composites of English language skills were analyzed in terms of the following variables: sponsorship categories, age, sex, graduate vs. undergraduate status, fields of study, length of stay in the U.S. and

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<sup>33</sup> We also included a measure of self image with regard to one's academic performance. Students were asked to rate their academic performance according to how they thought U.S. students would rate it. Most of these correlation coefficients were statistically significant. In terms of importance, this self image measure did not account for substantial variation of any need composites. In terms of satisfaction, however, there were several correlation coefficients accounting for more than 5% and up to 10% of variation in certain need composites. They were the correlation coefficients with satisfaction scores of needs regarding university environment, needs for facilitating coursework, needs regarding relationships with faculty and staff, and perceived likelihood of primary and secondary goals. Expectedly, the higher the self image perceived the more satisfied students were in the above needs which were mostly involving interpersonal relationships, particularly with U.S. faculty and staff.

at the school, regions of the world, school size, and living arrangements. As far as linguistic needs were concerned, we limited our hypothesis testing to these independent variables.

With regard to perceived importance of English skills, the only significant difference was found in terms of sex categories; female students placed higher importance than male students on the English skill composite.

As to the self-evaluation of English skills, sex categories, undergraduate vs. graduate status, and fields of study did not show significant differences. In terms of sponsorship categories, home government supported students ranked highest in self evaluation of the skills and significantly higher than self or privately supported students, the lowest ranked. In terms of regions of the world, African students rated themselves significantly higher than the rest, with Latin American students being second, South and East Asia third, and Southwest Asian students fourth, even though the difference between the third and the fourth was not significant. European students were excluded from this comparison due to their relatively small size. In terms of living arrangements, those in married student housing rated themselves higher than those in dormitories, with off-campus students ranking in the middle and not significantly different from either categories. Students living with U.S. students ranked highest and rated themselves significantly higher than those residing with fellow countrymen, the lowest ranked.

Those who had taken any English remedial courses were asked to evaluate those courses as to how well they helped to improve the skills. Sex, undergraduate vs. graduate status, fields of study, and living arrangements did not make significant differences in this evaluation.

As to the regions of the world, students from Latin America rated those courses highest and gave a significantly higher rating than those from Southwest Asia who gave the lowest rating. We have no data to speculate the reason for this rating. However, it is the impression of one of the authors that there has been more linguistic work done with regard to teaching English as a foreign language to Spanish and Portuguese speaking groups than any other groups. To some extent, the above result might be reflecting this fact.

In terms of age, even though all the correlation coefficients were statistically significant, none exceeded  $r$  values of .10. As to the length of stay in the U.S. and at the school (the total months), all coefficients were significant but only the ones of self evaluation of skills was positively correlated with total months of stay in any substantive magnitude ( $r$  values over .10). However, neither one of the two correlations were accounting for 5% or more of variation in self-evaluation of the skills. School size was correlated significantly only with importance and self-evaluation scores of the skills. (Its correlation with students' evaluation of remedial courses was not significant.) Yet, none of the correlation coefficients were substantial (all less than .10).

#### Conclusions

In every category of needs, there were needs which were not satisfied to the level of students' expectations, even though most of the needs were satisfied to a certain extent rather than unsatisfied. Needs for practical experience and anticipated post-return needs were among the least met and the most problematic ones for educational institutions to accommodate. Financial needs and pre-return information needs were also least met to their expectations,

However, meeting these needs was considered to be less problematic. Among all the categories of needs, informational needs were best met. Students were also quite satisfied with the likelihood they perceived in achieving their primary educational goals which they regarded with the highest importance. Students varied most by regions of the world from which they came and second by the major field categories with regard to importance they placed on various needs. Sponsorship categories, undergraduate vs. graduate status distinctions and job prospects were the next significant characteristics to account for variation in importance of needs. With regard to satisfaction of needs, again, regions of the world turned out to be the most significant predictor of satisfaction with many needs, followed by self-evaluated command of English, whether or not living with U.S. students, and job prospects in their home countries.

*Data pertaining to the above findings are presented in Appendix A, DATA BOOK. Table VII presents selected characteristics of the sample.*

Table VII. Selected Personal Characteristics of the Sample<sup>a</sup>

Age	Sex		Marital Status		Academic Level			
	Frequency	Percent	Frequency	Percent	Frequency	Percent		
17-22	256	14.4	Male	1412	78.1	Freshman	19	1.0
23-27	654	36.8	Female	396	21.9	Married, with the spouse	114	6.0
28-32	525	29.6	Total	1809	100.0	Married, with- out the spouse	168	9.0
33-37	235	13.2				Other	254	14.0
38 over	106	6.0				M.S. Student	627	34.4
Total	1776	100.0				Ph.D. Student	580	32.0
						Other	67	3.6
						Total	1829	100.0
						Major		
Countries of Origin <sup>b</sup>								
Africa								
Southwest Asia								
Nigeria	186	10.3	Iran	118	6.5	Taiwan	136	7.5
Kenya	36	2.0	Israel	23	1.3	India	128	7.1
Sudan	30	1.7	Jordan	20	1.1	Thailand	94	5.2
Egypt	25	1.4	Other	58	3.2	Indonesia	81	4.5
Ghana	21	1.2	Subtotal	219	12.1	Malaysia	68	3.8
Other	215	11.9				Korea	66	3.7
Subtotal	513	28.5				Philippines	31	1.7
Latin America								
Venezuela				71	3.9	Pakistan	30	1.7
Brazil				46	2.6	Other	61	3.4
Turkey	24	1.3	Mexico	44	2.4	Subtotal	695	38.6
Other (Portugal)	3	0.2	Colombia	34	1.9			
Subtotal	27	1.5	Chile	23	1.3			
			Other	131	7.2			
			Subtotal	349	19.3			
			Total	1803	100.0			
Southeast Asia								
						Engineering	400	21.8
						Agriculture	273	14.9
						Business & Management	214	11.6
						Natural & Life Sciences	168	9.1
						Social Sciences	153	8.3
						Education	86	4.7
						Health Professions	60	3.3
						Humanities	31	1.7
						Other	452	24.6
						Total	1837	100.0

a. Total frequencies varied by characteristics due to different missing cases.  
b. Only those countries with twenty or more respondents are listed.

## VI. RECOMMENDATIONS

1. Needs for practical experience before returning home were the least met needs. Practical experience, such as a type of internship, could be made part of the degree program so that schools could formally assist students, especially in certain fields, to have needs met before returning home. In our opinion, accommodation of this type of need will enhance the value of U.S. education to students from developing nations.
2. Students anticipated certain material and professional needs to be unmet upon returning home. (This anticipation was less acute among those supported by AID and home governments.) This anticipated frustration has ramifications to various aspects of their stay in the U.S. It is our recommendation that students be given some assurance with regard to material rewards (jobs, etc.), opportunities and facilities to further their professional growth by their home governments. The U.S. government and U.S. educational institutions might be able to assist or cooperate with the home government in this regard.
3. We contend that providing foreign students with assistantships is a more beneficial means of support in that students have significantly more satisfying experiences in the U.S. We suggest that both AID and home governments consider providing assistantships by channeling funds to specific departments of colleges and universities where prospective students will be located as a viable alternative to the current manner of assisting students with scholarships.

4. Self-evaluated command of English was a substantial predictor of satisfaction in a variety of needs. In order to have students feel satisfied with their stay, a sound preparation in English skills is a must. A good command of English is much needed in order for students to have meaningful experiences at the interpersonal and community levels. Remedial English courses could be strengthened, and intermediate courses are desirable, in addition.
5. Needs for relevant education and for training to apply knowledge were emphasized by students in most fields of study, but particularly in agriculture. These are the types of needs educational institutions could accommodate by improving the current curriculum. Whether these needs are being met or not will have far reaching consequences pertaining to the use of training and knowledge that students have when they return to their home countries. If these needs are not met, the student's training may not be best used.
6. Regions of the world from which students came made significant differences in terms of importance of certain needs and satisfaction. Even though emphasized by students from all the regions, African students particularly placed high importance on the above points (see 5). We are under a strong impression, based on the preliminary analysis of data, that students from different regions of the world have different perceptions of their acceptance, consequently leading to different degrees of satisfaction, particularly in those need areas involving interpersonal interactions. One of the groups who perceived the least satisfaction in receiving equal acceptance by faculty and human respect by U.S. students was the group who were

most likely to return home, i.e. African students. We must deplore this situation. We cannot overemphasize the strong need for improving human relations between U.S. nationals, faculty included, and foreign students in academic institutions, especially when we recognize that today's foreign students are likely to become tomorrow's leaders in those nations.

7. Students living with U.S. students tended to have more satisfying interpersonal experiences and stronger confidence in both primary and secondary goal attainment than those living with fellow countrymen in particular. U.S. educational institutions could assist and encourage foreign students to live with U.S. students. Such arrangements can even be made in advance for foreign students, if so desired by them.
8. Overall, students with jobs in their home countries enjoyed a more satisfying stay in the U.S. as measured by academic and interpersonal items. We wish to re-emphasize the importance of guaranteed job opportunities for students in order to ensure more satisfying experiences for them in the U.S. Those with jobs waiting scored the lowest in placing importance on the need for practical experience. However, this did not hold in every field. Needs for work experience and opportunities to apply knowledge gained in the class before returning home appeared to be genuine among many students who had jobs waiting for them in their home countries, as well as among others.
9. For further analysis of the data, we recommend that AID students be compared with other students from Stratum I only, since AID students were mostly found in that stratum.

Finally we wish to express our opinions. U.S. educational institutions are encouraged to make an accommodation to meet the needs for training to apply knowledge and practical experience before returning home. They are also encouraged to contribute in having the post-return needs met. Accommodating the needs for practical experience might raise a concern among some who speculate that practical training might lead to a permanent stay in the U.S. We suggest educators in the U.S. institutions to reevaluate the objectives of U.S. education in regard to foreign students. Is it to educate foreign students, regardless of country of origin, for advancement of the world community of sciences and humanities? Or is it to educate students to meet the needs of their home countries? If the former is the major objective, the issue of return intention becomes irrelevant. Once educated, graduates should be given the best opportunities in the most facilitating environments to most effectively contribute their talents to the advancement of the international community of knowledge. If the second is to be the primary objective of U.S. education, then we contend that U.S. educational institutions and government, in conjunction with students' home governments, need to better plan and ensure that students be given appropriate professional opportunities and facilities to utilize their training and further advance their knowledge upon returning to their home countries. Such a plan should ideally be made before students leave their countries, so that they will experience greater satisfaction while in the U.S. Under this objective, U.S. educational institutions would be obliged to accommodate the need for more relevant programs and more practical training so that students can see how to apply their U.S. education to the situations in their home countries.

Education should be regarded as a continuous process. U.S. educational institutions may be in the position to provide continuous opportunities and facilities to further enhance professional growth of the returnees through cooperation between institutions of developing countries and the U.S., and also between the governments. International education should not end on the day students leave for their home countries. By providing opportunities and facilities for continuous professional growth to the returnees, we can hope to have the returnees in developing nations contribute to the international community of knowledge as our peers in the days to come.

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